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An Address
ON
THE INFECTIVITY AND MANAGEMENT OF SCARLET FEVER.

Delivered before the Medical Officers of Schools Association on Dec. 8th, 1904.

By W. T. GORDON PUGH, M.D., B.S. Lond.,
SENIOR ASSISTANT MEDICAL OFFICER TO THE NORTH-EASTERN HOSPITAL OF THE METROPOLITAN ASYLUMS BOARD, LONDON.

Mr. President and Gentlemen,—I must, in the first place, express my keen appreciation of the honour you have done me in asking me to read a paper on this subject. I do so with the greater pleasure, since it affords me an opportunity of raising points of importance in the administration of fever hospitals and of obtaining the views of an association of medical men in a position to pronounce an authoritative opinion.

The Infectivity of Scarlet Fever.

Sources of information.—Since bacteriology unfortunately does not afford us any real aid in deciding the question of the infectivity of scarlet fever our ideas regarding this subject must rest rather upon analogy and surmise than upon direct and trustworthy evidence. It is especially in connexion with "return" cases that attempts have been made to gather information and the infectious convalescent will therefore figure largely in this paper. Some light is also thrown on this difficult question by a study of diphtheria, a disease in many ways analogous, the micro-organism of which is readily recognised, and concerning which our knowledge has greatly increased during the last few years. I may add that the conclusions I shall attempt to draw are in agreement with the opinions which I have formed during my experience of the disease.

Diphtheria as an analogous disease.—It may be disputed that diphtheria is an analogous disease and in any circumstances it will be well to give reasons for so regarding it. As I shall show later, the infective agent in each has been proved definitely to be present in the throat and there is strong evidence that in scarlet fever, as in diphtheria, it is not infrequently resident in the nasal cavities also. In both diseases the bacterial poisons exhibit selective action: in scarlet fever the kidneys, in diphtheria the peripheral nerves and heart muscle, are specifically affected. The death of the superficial layers of the skin, resulting in desquamation, may also be due to a selective property of the scarlatinal toxin. In certain features, it is true, the two diseases appear on superficial examination to be not quite analogous; some of these I shall dwell upon later. The rash in scarlet fever, perhaps the most striking difference, may quite possibly be due to some bacterial product circulating in the blood, for it is closely simulated by the erythema which results, for example, from the administration of certain drugs or of a soap-and-water enema. Scarlet fever much more closely resembles diphtheria than it does small-pox, the distinctive skin lesions of which appear to be the direct result of the extrusion from the circulation of a virus which recent researches suggest is possibly a protozoon. These lesions follow a continuous and characteristic course from papule to scab and to them in the later stages of the disease infection would appear to be confined, while protraction of infectivity beyond the stage of separation of the scabs is said to be unknown.

Criteria of infectivity.—Before discussing in detail the infectious convalescent it is necessary to indicate briefly the general rules that have governed the time of detention. It was originally believed that the period of infectivity coincided with that of desquamation. Occasionally, however, patients leaving hospital after desquamation was completed were found to be the apparent cause of fresh outbreaks in their homes. It was then noticed that a large proportion of such patients had suffered, either before or after leaving hospital, from discharges from the nasal or aural passages or from unhealthy conditions of the nasal mucous membrane with or without visible discharge. Rhinitis and otorrhœa, therefore, became additional criteria of infectivity. It was at the same time generally accepted that the secondary desquamation of hands and feet which sometimes occurred was not infectious. The practice of discharging patients during the primary desquamation had not made much headway at the time of the investigations which I shall quote, and, except when specially stated, it may be assumed that six weeks was adopted as the minimum period of isolation and that primary desquamation, rhinitis, and ear discharge were regarded as reasons for further detention.

Certain features of diphtheria.—For the better appreciation of the results it will be well to recall also certain of the known features of diphtheria. 1. In the first place, the Klebs-Löffler bacillus occasionally persists for long periods. In some of these patients the throat does not quite recover its normal appearance; there is slight congestion of the tonsils or excess of mucus in the naso-pharynx. But this is not always so; in some of the most intractable cases the nose and throat appear clinically quite normal. 2. Another point is that the persistence of the bacillus does not depend on the original severity of the disease; mild cases, in spite of continued treatment, often retain infectivity for a very long time. 3. A third point is the fact that the number of patients who give rise to "return" cases cannot be regarded as a full measure of those who are released from isolation still carrying the virulent germ in the throat and the nose. This circumstance may be attributed partly to the non-susceptibility of the other inmates of the house and partly to the absence of discharges by which the micro-organism may be transferred. 4. Finally, one may definitely say that in the case of diphtheria it is impossible, without bacteriological aid, to decide when a convalescent becomes free from infection. There is evidence that these features are also exhibited by scarlet fever.

Statistical investigations.—From the hospitals of the Metropolitan Asylums Board during six months, October, 1898, to March, 1899, 6507 recovered scarlet fever patients were discharged and association with "return" cases occurred in 2·9 per cent. of these. The infecting cases formed the subject of careful investigation by Professor W. J. R. Simpson[1] who visited each of these patients at his own home within a short time of the occurrence of the fresh outbreak and made observations on his condition at that time. The condition of infecting cases on the day of discharge from hospital, which for obvious reasons is not of quite the same value, has been published by several observers, for example, Dr. P. Boobbyer,[2] of the Nottingham Fever Hospital, and Dr. C. K. Millard,[3] formerly of the Birmingham City Hospital. Dr. A. Knyvett Gordon[4] of Manchester has also made interesting observations. I propose to take *seriatim* the throat, nose, ear, and skin as sources of infection, and regard them in the light of these statistics.

The throat.—It was incidentally shown by a research, published in the *Medical Record* for September, 1899, that the mucus of the throat in the early stages of the disease definitely contained the contagium of scarlet fever. The manuscript had been found among the papers of the late Dr. J. W. Stickler, and it detailed certain observations which he had made with a view to conferring immunity against scarlet fever. He had taken mucus from the throat of a mild case of this disease and mixing it with a weak solution of carbolic acid had injected it subcutaneously into ten children. In all cases after an incubation period of from 12 to 72 hours scarlet fever of undiminished severity followed and Dr. Stickler therefore abandoned his researches.

The part the throat plays in the diffusion of infection in the late stages of the disease is uncertain. Dr. H. Mervyn Gordon[5] suggests that it is a more frequent cause of "return" cases than has been generally imagined. He believes that, in addition to infective material being transmitted directly by kissing, or indirectly by being deposited on cups, towels, &c., there is a possibility of air-borne infection occurring indoors from the dissemination of droplets of moisture from the mouth in talking, sneezing, and coughing.

That mucus from the throat may be disseminated in coughing and sneezing cannot be doubted and it is interesting to note that Professor Simpson found among 90 probable infecting cases 15 with colds in the head and five with colds

[1] Report on "return" cases of scarlet fever and diphtheria, Metropolitan Asylums Board, 1901.
[2] Brit. Med. Jour., August 31st, 1895, p. 523.
[3] Ibid., Sept. 3rd, 1898, p. 614.
[4] Reports on the Health of the City of Manchester, 1902 and 1903.
[5] Brit. Med. Jour., August 16th, 1902, p. 445.

in the chest, a fact which emphasises the importance of preventing chills after release from isolation and of dispensing with the hot bath immediately before discharge. But I should regard it as unlikely that in the convalescent stage there is much danger of distribution by talking of those pathogenic organisms the habitat of which is the throat. Any fluid which may be sprayed in the act of talking comes from the neighbourhood of the incisor teeth and as there is a constant flow of saliva backwards to the pharynx it must be only occasionally that in this stage such fluid contains bacteria derived from the fauces.

The nose.—Rhinitis is a common and very important complication. The great facility this affection offers in young children for a widespread diffusion of infection when the discharge contains the infective agent is sufficiently apparent. It is often most intractable to treatment and the knowledge that it is frequently associated with "return" cases leads to its being the main cause of prolonged detention of patients in hospital. Every endeavour is made that a patient shall leave free from nasal affection, though there can be no doubt that the condition often relapses within a short time of the child reaching home. It not infrequently is first noticed after the patient has been discharged. At Birmingham, while only 6 per cent. of all cases had an abnormal condition of the nose at the time of discharge, no fewer than 22·9 per cent. of the infecting cases had been noted as leaving with such abnormality. Dr. Knyvett Gordon relates that rhinorrhœa was associated with 39 out of the 174 alleged infecting cases which occurred in Manchester in the years 1902 and 1903; in eight cases it had been present at the time of leaving hospital; in 31 it appeared later. Professor Simpson found that of 90 discharged patients whom he regarded as probably the cause of fresh outbreaks 49 had nasal discharge, five had sore nose, and 15 had cold in the head with running at the nose. But it must be noticed that rhinorrhœa does not necessarily prove infectious in the family. It may be calculated from the Birmingham statistics that less than one-eighth of the cases discharged with a morbid condition of the nose became associated with the "return" cases. This may be due to one of the following causes: the exposed children may not be susceptible; the discharge may never actually be conveyed to them; or the discharge may not in all cases carry with it the infecting virus. It is probable that the last is most frequently the correct explanation, for in diphtheria the rhinorrhœa which sometimes occurs in convalescence is often found not to be associated with the presence of the Klebs-Löffler bacillus. In other words, the risk attached to rhinorrhœa would appear to be that if the infecting agent is still present on the mucous membrane of the nose the discharge will act as a vehicle for its distribution. From many observations it seems likely that in both scarlet fever and diphtheria persons may be released from isolation still carrying the contagium on their mucous membranes and yet prove harmless unless catarrh is set up and the resulting discharges act as carriers of infection.

The ears.—Otitis is also a common complication of scarlet fever. Among nearly 11,000 patients treated in the Board's hospitals during 1903, 15 per cent. suffered while in hospital from otorrhœa. Even this does not include all, for not rarely it occurs for the first time after the patient has left hospital. Otorrhœa which has ceased for weeks is apt to recur when the child comes again under home conditions. The frequency of this complication being admitted, what is its potentiality for transmitting infection? Dr. Millard states that otorrhœa was present on discharge in 2·2 per cent. of alleged infecting cases as compared with 1·5 per cent. of all cases. The inquiry is to some extent obscured by the fact that rhinitis often co-exists with the otitis (*vide* Professor Simpson's table), and the difference is not sufficiently great to enable one to say that otorrhœa plays a very important part in the causation of "return" cases. Since otorrhœa, for anatomical and pathological reasons, frequently persists for a long time after the original infective process with which it was associated has disappeared this observation is of considerable interest. It may be debated whether the fact that otorrhœa is less infectious than rhinorrhœa results from the specific contagium being frequently wanting in the secretion or because with ordinary precautions there is less risk of the discharge being brought in contact with the mucous membranes of other children.

Desquamation.—Against the infectiousness of secondary peeling and late desquamation of the feet there has been accumulated a considerable amount of evidence; for example, at Birmingham during 1896–98 while 8·2 per cent. of all patients left with some late peeling of the feet only 7 per cent. of alleged infecting cases had exhibited this condition on discharge. The impression that even earlier desquamation is not infectious has been gaining ground for several years but definite information on this point is not yet very extensive. In 1895 Dr. Boobbyer[6] stated that his experience as medical officer of health led him to believe that too much importance had been attached to risk of infection from desquamation. He pointed out that the disease frequently failed to spread from an actively desquamating patient (though surrounded by susceptible persons) if the mucous surfaces had been only slightly invaded. Dr. H. Meredith Richards,[7] then superintendent of the Birmingham Fever Hospital, also expressed the opinion that desquamation was simply concomitant and not the essential cause of infection. Dr. E. G. Gilbert[8] of Tunbridge Wells remarked that for 20 years he had acted with success on the conviction that in a desquamating skin after scarlet fever there was no danger to others and that if the throat and the nose were quite sound isolation of the patient was not necessary for more than a month. Dr. J. Priestley[9] in the same year recorded that at Leicester, at the time of an outbreak of small-pox, about 120 children in various stages of desquamation after scarlet fever were sent to their homes and no secondary cases occurred at any of these houses. In 1902 Dr. Millard[10] of the Leicester Fever Hospital reported that he had adopted four weeks as the minimum period of isolation and had discharged during three months 190 patients after an average period of detention of 35·3 days. The exact number was not given but it was stated that many of these were still desquamating. Of the five cases which had gave rise to fresh outbreaks in their own homes only one had been noted as having desquamation present on discharge and in this patient the peeling was confined to the feet and the nose was found to be unhealthy. From several of the Board's hospitals during the past two or three years a number of patients who had not suffered from complication have been discharged desquamating at the end of four weeks' detention but no statistics as to results have yet been published. At Southampton during 1903 Mr. R. E. Lauder[11] also put the matter to the test and ignored desquamation as a reason for further isolation. He reports that 325 convalescents left hospital during the year. Of these, 204 patients who had not suffered from complications during their stay in hospital were discharged peeling, after an average detention of 28 days; there were only two "return" cases. 33 were discharged without desquamation or complication after an average stay of 33 days; there were no "return" cases. The remaining 88 patients, in whom complications of various kinds had occurred, left after an average stay of 50 days and there were five "return" cases. Mr. Lauder remarks: "If peeling *per se* were infectious then it is almost impossible to conceive how 204 patients discharged from the hospital in a peeling condition failed to be responsible for more than two return cases."

No morbid condition.—It is not uncommon for patients discharged apparently free from all abnormality to give rise to "return" cases. Dr. Boobbyer stated that 11 out of 29 infecting cases which were discharged from the Nottingham borough hospital in 1893 were normal on discharge. Dr. Millard recorded that 58 per cent. of the infecting cases at Birmingham were quite clear in every way at the time of leaving hospital. It must be recognised, however, as I have already related, that a morbid condition not infrequently develops or recurs after the child has been sent home and that this is apt to be followed by the occurrence of "return" cases.

Conclusions.—To sum up the results of these investigations, the evidence that infectivity lies not in the desquamating cuticle but in the throat and nasal cavities is decidedly strong. In scarlet fever, therefore, as in diphtheria, it must be impossible to ascertain definitely by clinical means when the patient has been freed from infection. It must not be assumed, however, that prolonged infectivity is the rule; it is probable that the majority of patients are free from infection at the end of the minimum periods of isolation

[6] Loc. cit.
[7] Brit. Med. Jour., August 31st, 1895, p. 524.
[8] Ibid., Sept. 14th, 1895.
[9] Transactions of the Epidemiological Society, vol. xiv., 1894-95.
[10] THE LANCET, April 5th, 1902, p. 969.
[11] THE LANCET, March 12th, 1904, p. 712.

usually prescribed—the six weeks for scarlet fever and the four weeks for diphtheria. It would seem impossible to discover by clinical means the minority who retain infection longer and difficult even to differentiate those by whom transmission of infection is likely. The impression derived from experience has been that such transmission is especially liable to occur from those who suffer from rhinitis at the time of their discharge or have suffered from this complication during their period of isolation, and this impression has been supported by statistics whenever subjected to that test. A nasal discharge, therefore, while not to be regarded as proof that the patient continues infectious, is a symptom to be viewed with considerable suspicion, for if the contagium is still resident in the mucous membrane of the nose it will unfailingly act as a vehicle for its distribution.

Review of suggested methods of indirect infection.—Having acquired from the study of the convalescent more or less definite ideas regarding the infectivity of scarlet fever one is now in a position to consider critically the various ways which have been suggested for indirectly acquiring the disease.

Milk.—I shall deal very briefly with milk as a vehicle of infection. Several outbreaks[12] of scarlet fever have been proved to the satisfaction of the medical officers concerned to be due to the consumption of contaminated milk. It is possible that this occurs more frequently than is known, for the milk supplied in towns often comes from various sources, passes through several hands, and suffers much blending before it reaches the consumer, and it is thus difficult to trace the career of any given sample.

Unrecognised cases.—I next come to the influence of unrecognised cases, which there is reason to believe is one of the chief causes of the failure of isolation to eradicate the disease. It is now widely appreciated that scarlet fever, like diphtheria, may exist in an extremely mild form, so mild that a considerable number of cases do not come under medical observation at all and so are never isolated. There are patients also with marked throat affection in whom the rash either does not occur or has such a brief existence as to escape notice. It is not at all unusual for such cases to be admitted into hospital under certificate of diphtheria. Cultures prove negative and desquamation, suggestive of scarlet fever, ensues in spite of the fact that no rash has been observed before or after admission.

Scarlatinal sore-throat.—Again, it is within the experience of everyone that inflammation of the throat is apt to arise in households in which scarlet fever has been notified and I think we are justified in considering it probable that many of these cases are scarlatinal in nature. Murchison wrote many years ago: "I have frequently found that when one or two children in a house have had scarlatina every adult in the same dwelling has suffered from a severe angina." In cases of this kind which have come under my observation, although the throat affection has been severe, no rash has been observed nor has desquamation followed.

Healthy infection-carriers.—The part played by the healthy infection-carrier comes next under consideration. The virulent diphtheria bacillus, it is known, may exist in the throats of healthy persons who have been intimately exposed to infection and in a variety of circumstances, it is believed, may be communicated to others who develop the disease. It is possible that in scarlet fever healthy persons may similarly carry the infective agent in their throats but in the absence of bacteriological evidence this must remain uncertain. Even in diphtheria we have no means of estimating the magnitude of the part the bacillus-carrier takes in the spread of infection. I may mention, however, that it is very rarely that one hears of either disease occurring in the homes of any of the staff of a fever hospital or among their friends. This is in spite of the fact that 10 per cent. of the nurses who have been examined while on duty in the diphtheria wards of the North-Eastern Hospital have been found to harbour the bacillus in their throats.

Temporary immunity.—This incidentally leads me to raise rather an interesting point. Nurses and medical officers not infrequently do not develop scarlet fever until they have worked for many weeks, or even months, in the scarlet fever wards. Patients admitted under an erroneous diagnosis may be in these wards for a fortnight or three weeks before they acquire the disease. The explanation usually given is that the susceptibility of an individual varies from time to time, but another interpretation is at least possible. In a well-conducted scarlet fever ward, as in a diphtheria ward, there is no reason why a person should not work or live for a considerable time without actually acquiring in the throat or nose infective secretions derived from patients, and it seems to me that this may well be the explanation of the apparently temporary immunity. The fact, therefore, may be regarded as further evidence of similarity in the mode of infection of diphtheria and scarlet fever.

Air, clothes, &c.—The question of the extension of infectious diseases by fomites and air has been recently discussed by Dr. Chapin,[13] superintendent of health of the city of Providence, U.S.A., and he arrives at the conclusion that the importance usually attached to these methods of transmission is based on very slight evidence. At a time when the desquamating cuticle was regarded as the sole source of infection in scarlet fever it was natural that a somewhat exaggerated importance should have been attached to the risk of conveyance by clothes, and that the carpets and curtains, even the walls and ceiling, should have had dangerous properties attributed to them. It has thus come about that to disinfection of the room, furniture, bedding, and clothes the sanitary authorities especially devote their attention. But although many cases have been recorded where it was possible that diseases were transmitted by fomites this is very different from proving that they were so carried. Much of the evidence was accumulated at a time when the possibility of danger from the convalescent, the infected yet healthy "contact," and the unrecognised case was not yet fully appreciated, and when allowance is made for coincidence also one may fairly question with Dr. Chapin whether the generally received doctrine rests on a really sound basis. That articles, such as cups, handkerchiefs, pillows, sheets, blankets, sofa cushions, towels, toys, and the like, liable to come in contact with the mouth or the nose of other persons, may transmit the disease if smeared with infective secretions no one can doubt. But secretion deposited elsewhere, generally speaking, cannot come into action until dry and pulverised, and when due allowance is made for the influence of light, desiccation, and starvation upon the virulence and vitality of all pathogenic organisms it must certainly be seldom that germs in the form of dust are received in sufficiently potent dose to cause the disease. These observations are important in that they indicate the direction which rational disinfection should take and the need for promptness and discrimination in dealing with this matter.

Conditions necessary for transmission.—In conclusion of this section I shall enumerate the conditions which appear to be necessary for the transmission of scarlet fever and similar diseases from a potentially infectious person. The contagium must be present in a form capable of being carried; there must be a vehicle for its conveyance; it must be actually conveyed to a mucous membrane; the germ must be still virulent when received; the dose must be sufficiently large; and the receiver must be susceptible to infection.

In measles all these conditions are usually fulfilled in marked degree. There is abundant secretion, distribution of which takes place by sneezing and coughing, by the contaminated hands of the attendant, and by articles smeared with the infective discharges. Susceptibility is almost universal and the disease would appear, from an epidemic in the Faroe Islands, to affect all ages alike.

In scarlet fever the mucous discharges are common during the acute illness and not infrequent in the later stages; distribution occurs as in measles. The average susceptibility is much less, however, and varies according to age, being estimated from the records of an outbreak[14] among a totally unprotected population at Thorshavn, the capital of the Faroe Islands, at 67 per cent. for persons under 20 years and 13 per cent. for those above that age.

In diphtheria the discharges are also frequent during the acute illness but much rarer in the convalescent stage; thus "return" cases occur in diphtheria less commonly than in scarlet fever. Transmission takes place as in that disease but the average susceptibility is less.

THE MANAGEMENT OF SCARLET FEVER.

It is now generally recognised that, owing to the several sources of infection with which I have dealt in the first

[12] Vide Bacteriology of Milk, by Swithinbank and Newman.

[13] Annual Report of the Superintendent of Health of the City of Providence for the year ending Dec. 31st, 1903.

[14] Vide Nothnagel's Encyclopædia of Practical Medicine.

section of this paper, eradication of the disease from large centres of population will not result from isolation of the notified cases. But this is no reason why every endeavour should not be made to limit the spread of infection. Though the case death-rate was only 3·1 per cent. among the patients treated in the Board's hospitals during 1903 nephritis occurred in 5·3 per cent., endocarditis or pericarditis in 0·8 per cent., middle-ear disease in 15·6 per cent., and mastoid abscess in 0·8 per cent. Scarlet fever, therefore, cannot be regarded even now as other than a serious illness. The methods of management, which are being adopted with a view to the limiting of infection, I shall now proceed to discuss, giving statistics illustrating the results of each.

Scarlet fever may be treated at home or in hospital, and there are drawbacks to each system. Home isolation tends to become a farce when the entire family occupies but two or three rooms, and, generally speaking, such isolation is not practicable among the poorer classes. When the patient is retained at home the wage-earner by reason of popular feeling often finds himself unable to continue at work. There is absence of skilled nursing; syringing of the throat and feeding by artificial means, often needed in septic cases, are of course not available. Even among the more well-to-do home treatment is not without its drawbacks. The isolation is frequently defective and secondary cases are apt to arise, while the patient has to pass the whole period of convalescence indoors, confined to the tedium of an often ill-ventilated bedroom.

Home treatment: first method.—There are two methods of home treatment. In the one more commonly adopted the patient is isolated from the other susceptible inmates by being kept to a single room. In Manchester during 1901 roughly one-fifth of the notified cases were treated at home. Dr. J. Niven,[15] the medical officer of health, using the rent to determine the circumstances of households, ascertained that the persons who were removed to hospital were of a much poorer class; he noted, also, that on the average there was considerably less susceptible material at home when the patient was not so removed. Since these home-treated cases differed from the hospital patients in these all-important respects it is obviously impossible to come to any trustworthy conclusion from Dr. Niven's statistics as to what would have happened had all the cases been treated at home. In the year mentioned 358 primary cases were treated at their own homes; there were 351 other unprotected persons *under 15 years of age* in these households, and 69 (19·6 per cent.) subsequent cases occurred.

More unsatisfactory are the results when home isolation is uniformly adopted for all classes. During the last few years interesting and instructive reports have been kindly sent me by Dr. Chapin[16] and I shall quote from his statistics. Providence has a population which has risen from 132,000 in 1890 to 193,000 in 1904 and home treatment had until recently been practically the only method employed. During eight years up to, and including, 1903 scarlet fever was acquired by no fewer than 26·1 per cent. of the 4412 persons in infected families *under 21 years of age*, other than the primary cases. (During this period 3023 patients, out of a total of 3315 cases, had been treated at home.) This high percentage of secondary cases forms a drawback to home isolation which is clearly a serious one, serious not only to the individual but also to the community. In the previous section it was shown that in a not inconsiderable proportion of the convalescents from both diphtheria and scarlet fever infectivity was protracted beyond the period of isolation. The multiplication of cases in the infected homes may thus have an effect not to be estimated merely by the number of secondary cases. Scarlatinal sore throats, also, to which I have referred as occurring in homes infected with scarlet fever are, of course, not included among the secondary cases, yet they are quite possibly highly infectious.

Second method.—The second form of home isolation consists in effectually separating the susceptible children by sending them away. This, so far as the children are concerned, is much superior to the other method, but it is obviously of limited application and there is some risk of infecting fresh households. In Providence, during the last 17 years, from 652 families infected with scarlet fever there were thus removed 1051 persons, mostly children, none of whom had had the disease. 52 (5 per cent.) were attacked while away from home. Dr. Chapin informs me that scarlet fever patients are isolated at Providence until desquamation has ceased, and five weeks was, until March, 1902, the time laid down as the minimum period of isolation. It is interesting to find that 19 of the above persons who had been thus sent away from the infected houses were attacked on their return home, a percentage on the infected families of 2·9. These cases correspond closely to the "return" cases of fever hospitals, described by some writers as purely a "hospital phenomenon." That similar instances of late infection are rarer when the other method[17] of home isolation is adopted may possibly be due to the more susceptible material being to a great extent used up in the secondary cases.

Segregation hospitals.—Hospital treatment also is of two kinds. The first is the segregation hospital, where wards of from 12 to 20, or more, beds are provided for scarlet fever patients, smaller wards for combined diseases, and single-bedded rooms, usually quite inadequate in number, for doubtful or complicated cases requiring complete isolation.

Drawbacks.—It is needless for me to indicate the advantages of hospital treatment for the poorer classes and I shall confine myself to pointing out the drawbacks attaching to segregation. 1. There is the risk, a small risk as a rule, which erroneously certified patients run of acquiring the disease in hospital. Scarlet fever often assumes a mild type and there is sometimes difficulty by the time the patient has arrived at the hospital in deciding whether or not the diagnosis is correct. 2. Then there is the possibility of infection by some secondary disease. This danger is not confined to fever hospitals but attaches to all institutions where sick children are collected together. A child admitted with scarlet fever may be at the same time incubating a second infectious disease which he transmits to some of his fellow patients. 3. Again, the period of isolation is on an average longer than when the patient is treated at home. This, however, may be due to the fact that, while many practitioners still regard desquamation as the sole criterion of infectivity, the hospital authorities attach much importance, perhaps too much, to the mucous discharges. 4. The fourth point is that there may be in a ward patients suffering from the same disease in different degrees of virulence—a state of affairs which may possibly act to the detriment of those admitted with a mild variety. 5. Again, rhinitis, which so frequently leads to prolonged detention, is regarded by some as transmissible. Both these drawbacks may be to some extent diminished by a classification of cases. 6. It is suggested, also, that the congregation of cases in wards affords facilities for a patient, who in other circumstances would be free from infection, to become reinfected. 7. Lastly, there is the fact that in a small percentage of cases the treatment has apparently failed and "return" cases arise as a consequence of the patient's discharge.

Protracted infectivity.—There has been considerable discussion as to the exact reason for this occasional persistence of infection. Professor Simpson raised the question as to how far segregation was responsible for it. As Dr. A. Newsholme[18] expresses it, Does the mucous membrane with its crypts act as a continuing incubator of scarlatinal germs originating from those which caused the patient's illness, or does it act merely as a suitable storehouse for germs derived from other patients, a storehouse which can only be emptied by one or more weeks' separation from these patients? Professor Simpson inclined to the second view and suggested that protracted infection might cease if convalescents were completely isolated for a fortnight and treated antiseptically. In diphtheria we are able to test this and there can be no doubt that in this disease, at any rate, the first explanation is the correct one in many cases of protracted infection, the germs which are present are descended from those which originally caused the patient's illness.

[15] Report on the Health of the City of Manchester, 1901.
[16] Loc. cit.

[17] Extracts from Dr. Chapin's report: Since 1895, there must have been at least 1300 families in which susceptible children remained after the removal of the warning sign. ..... The disease recurred in 30 families after removal of the placard (in 20 within a month); ..... and in seven other families living in the same house (in five within a month).

[18] Public Health, August, 1904, p. 713.

Disappearance of infectivity.—It may be added that antiseptic treatment in prolonged infection in diphtheria is disappointing. In a proportion of our cases—a small proportion, it is true—although the nose is douched, the throat syringed or painted with antiseptic lotion every four hours, and the patient kept isolated in a single-bedded room, yet the bacilli persist for weeks and even months. Indeed, it would seem as if the disappearance of the bacilli was not entirely due to their mechanical removal but in some degree to a specific bactericidal action on the part of the mucous membrane or its secretion, the development of which property was in some cases considerably delayed. The question as to how persons suffering from these infectious diseases lose the contagium and cease to be infectious seems to me both an interesting and an important one which has not yet been sufficiently discussed. If it does depend on a specific property which the tissues develop in the course of the illness there is hope that measures may be devised for hastening the onset of this action. The provision of a method of effectually and speedily removing infection is as important to the public health as the discovery of an antitoxin.

To return to the relation between segregation and prolonged infectivity it is probable from analogy and from the fact that infection is sometimes prolonged in cases treated by home isolation that segregation is not wholly responsible. But I should regard it as possible that it has some effect. To express it in the terms of the theory to which I have just referred, I see no reason why a specific bactericidal action, if one exists, should not in some cases be short-lived, just as in diphtheria the antitoxic property is. In these circumstances the patient might re-acquire infectivity from his neighbours without the necessity of re-acquiring the disease.

Results.—What is the influence of the segregation hospital on the occurrence of cases in the households attacked? Dr. Niven[19] reports that in Manchester, during the year 1901, there were 1534 cases removed to hospital. There were 2937 unprotected persons under the age of 15 years left and 356 subsequent cases[20] occurred, a percentage of 12·1. In addition, 3·6 per cent. of these children acquired scarlet fever after the discharge of the primary case from hospital. Thus in all 15·7 per cent. of the unprotected children in these households acquired the disease. Comparison with the results at Providence of the treatment of all classes at home would suggest that the removal to a segregation hospital had very considerably reduced the risk to susceptible persons in the infected households, quite apart from the undeterminable influence on the health of the community. One would not be justified in saying how much, for all the conditions may not be the same in the two instances.

To improve results.—The question arises as to whether these results could be improved. I shall pass over the secondary cases which, however, form the majority of the subsequent cases, merely remarking on the importance of prompt removal of the primary case, on the danger of infection being spread by the soiled hands of the parent, and on the necessity for immediate disinfection of articles likely to be smeared with infective secretions, cups, spoons, handkerchiefs, sheets, pillows, towels, toys, &c., all matters which are very much in the hands of the medical attendant.

It is probable that the number of "*return*" *cases* might be reduced were the attention of parents more generally called to the fact that freedom from infection cannot be definitely ascertained. For some time after the return home of the patient precautions should be taken with regard to such articles as those indicated above, and if possible he should not sleep with children unprotected by previous attack. In many households such precautions are possible but are not taken because the parents are under the impression that the child is, so to speak, guaranteed free from infection. The general incidence might also be influenced if convalescents were prevented from attending school for at least a month after their release from isolation. These remarks apply to home-treated, as well as hospital-treated, patients. Is it possible by any modification of hospital treatment to reduce still further the number of "return" cases? I have already indicated that segregation may conceivably have a delaying influence on the freeing of patients from infection and it would be well to remove this possibility. A separation of acute from convalescent patients and of complicated from uncomplicated cases has been a step in this direction. But the gathering together of the complicated cases is not free from objection and two of the principal drawbacks to the segregation hospital, the occasional occurrence of secondary disease and the risk to wrongly certified patients, still remain. In these circumstances attention is naturally being directed to the possibility of securing isolation rather than segregation for hospital patients.

True isolation hospitals.—This brings me to the second form of hospital treatment—the true isolation hospital. In hospitals of this type the patients are treated in wards built on the cubicle system. In each ward is a central passage with single-bedded cubicles opening into it, separated from one another by partitions, composed in great part of glass. Each room is well ventilated and provided with its own hot and cold water fittings for hand-basin and moveable bath. All articles used by the patient, such as cups, plates, spoons, &c., are sterilised after use, and the nurses wash their hands and change overalls on going from one cubicle to another. In this way it has been found possible to treat different diseases in adjacent cubicles without interchange of infection. There are drawbacks to this system, of course. From the patient's point of view the curtailment of out-door exercise and the confinement to one room are objectionable; the glass partition, however, relieves him from a sense of complete isolation. From the administrative aspect the wards are more expensive to build, the nursing is not so convenient—a matter of some importance when over one-third of the patients are under five years of age—and there may arise difficulty in securing adequate disinfection of the attendants' hands. The drawbacks, however, are not insurmountable, and hospitals of this construction have been found to work satisfactorily in France and the United States.

Many of the wards of a segregation hospital could be readily converted into cubicle wards by glass partitions. If a suitable classification of cases were adopted the common bathroom and lavatory might still be used. Unless there were special indications the overalls might be dispensed with, and the nurse need disinfect the hands only before and after attending to the mouth and the nose. In wards where miscellaneous diseases, acute cases, or cases complicated with chronic mucous discharges were treated the wearing of rubber operation gloves would facilitate the frequent washing and disinfection of the hands which would be required. (These gloves are worn by nurses in the septic wards and isolation rooms of the North-Eastern Hospital and prove satisfactory.) Sterilisation of the food utensils is indispensable and this might be done centrally. The provision of several fixed hand-basins is an almost essential convenience but might in many cases prove the chief difficulty in the conversion of wards from the one system to the other. Since transfer of infection depends almost entirely on the conveyance of infective secretions by the soiled hands of the nurse, on the playing together of the children and the use of the same toys, and on the imperfect cleansing of eating and drinking utensils wards modified as suggested would in all probability meet the occasion. This method of treatment is said to be efficient in the case of scarlet fever, but I am not able to bring before you statistics dealing with sufficient numbers to allow of trustworthy conclusions being drawn from them. One would anticipate that the danger of acquiring disease in hospital would diminish almost to vanishing point, that the period of isolation would be shortened, and that the number of patients discharged while still infectious would be lessened. It is unlikely that "return" cases would be altogether prevented, but owing to the special attention which would be paid to the throat and nasal cavities the results would probably be better even than those of home treatment by the second method, which in effect this system of isolation closely resembles.

In conclusion, gentlemen, the beneficial influence of hospital treatment on the incidence of scarlet fever cannot be realised to the full without coöperation on the part of parents, medical attendants, and sanitary authorities, and I have endeavoured in this paper to indicate in some particulars the direction which such coöperation should take. It is of prime importance also that the micro-organism of scarlet fever should be isolated and identified. It would probably lead to a saving of public money were an organised research made into this subject, for there can be little doubt

[19] Loc. cit.

[20] In both Providence and Manchester, when cases have occurred nearly simultaneously in one house they have been treated in these statistics as primary and subsequent.

that under the present system, while some are discharged who are still infectious, many are isolated for an unnecessarily long period.

APPENDIX.

The following table, in which the condition, *at the time of discharge*, of alleged infecting cases and all cases is compared, is compiled from Dr. Millard's valuable paper published in the *British Medical Journal* of Sept. 3rd, 1898.

—	Enlarged tonsils or congested mucous membrane.	Enlarged cervical glands.	Morbid condition of the nose.	Otorrhœa.	Desquamation.	Sores and excoriations.	Skin eruptions.	Albuminuria.	Quite clear in every way.
Alleged infecting cases (158)									
Percentages	3·1	2·1	22·9	2·2	7·0	3·1	3·1	0·6	58·2
All cases									
Percentages	5·4	2·3	6·0	1·5	8·2	2·2	1·0	0·5	72·6

The next table is from Professor Simpson's report to the Metropolitan Asylums Board, 1901, and deals with the condition of 90 probable infecting cases *at the time of his visit*.

—	Unhealthy throats and enlarged cervical glands.	Colds in the chest.	Colds in the head.	Discharge from the nose.	Sore nose.	Discharge from the nose and ears.	Desquamation and eczema.	Various.	Healthy.
Cases (90)	7	5	15	36	5	13	3	3	3
Percentages	7·7	5·5	16·6	40	5·5	14·4	3·3	3·3	3·3

The statistics which have been quoted as to the results in infected families of different methods of management are presented below in tabular form.

—	Unprotected persons exposed.	Subsequent cases among these.
Home treatment.		Per cent.
Providence (1898–1903*) ...	4412 (under 21).	1154 = 26·12
Manchester (1901†)	351 (under 15).	69 = 19·62
Home isolation by second method.	1051 (mostly children).‡	52 (secondary) = 5·02
Providence (1867–1903)		19 ("return") = 1·82
Hospital segregation.	2937 (under 15).	356 (secondary) = 12·12
Manchester (1901)		106 ("return") = 3·62

* All classes. (Only 292 patients out of 3315 were sent to hospital and these are not separated in the calculations.)
† To some extent selected cases.
‡ 876 under 15 years of age, 136 between 15 and 20, and 39 over 20. Children who returned home before the placard was removed are not included.

UNIVERSITY OF LEEDS.—The higher education subcommittee of the Leeds education committee has made the customary annual grants out of funds provided for the purpose by the Local Taxation (Customs and Excise) Act, 1890. The total amount available was £6225 and of this £1550 were allotted to the University. This grant is in addition to the sum of £4000 which was previously voted by the city council. The Duke of Devonshire has contributed £1000 to the Foundation Fund which now amounts to £66,477. Arrangements have been made to hold a dinner of the court of the University on Monday, Feb. 6th, in the University Buildings. Mr. Alfred Mosely, C.M.G., will be the principal guest and it is noted that there will be a large attendance. Earlier in the day Mr. Mosely is to give an address on "Some Lessons learned by the Recent Mosely Commission of Educationalists in the United States."

PRIMARY HEART FAILURE AS THE IMMEDIATE CAUSE OF DEATH IN ACUTE DIPHTHERITIC TOXÆMIA.[1]

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IN studying the action of a poison on the body one of the most important points to be determined is the exact manner in which death is brought about. I have therefore been guided in the choice of my subject by two considerations: first, that heart failure is commonly looked upon rather as a complication of acute diphtheritic poisoning than as the immediate cause of death and as the result of an essential lesion of the disease; and, secondly, that many continental physicians deny that the pathological changes, which in England are considered to be the cause of heart failure, play any important part in bringing about the death of the patient.

Diphtheria is much more closely allied in character to poisoning by snake venom than to the infectious diseases as we see them clinically and like snake venom the poison of diphtheria probably consists of several different bodies. Sidney Martin[2] has shown that in addition to the secretion of a toxin, the diphtheria bacillus has the power of digesting the proteid constituents of a suitable medium in which it grows with the formation of albumoses and an acid body which also have a poisonous action. Ehrlich[3] has demonstrated that the toxin probably consists of two distinct substances: (1) Toxin which gives rise to the acute symptoms of poisoning; and (2) toxone which leads to a degeneration of the peripheral nerves after the acute symptoms have subsided. Diphtheria antitoxin has a greater affinity for toxin than toxone and in the partial neutralisation of toxin bouillon will combine with the former in preference to the latter. This is borne out clinically by the fact that antitoxin is more efficient in preventing death from acute diphtheritic poisoning than in lessening the tendency to subsequent paralysis. To attain the latter object large doses of antitoxin are necessary. This view is not held by all pathologists, notably Arrhenius and Madsen,[4] who maintain that diphtheria toxin is a homogeneous poison.

Provisionally, therefore, diphtheria may be divided into two stages from both the pathological and clinical standpoints: (1) An acute toxic stage the symptoms of which are referable to the action of toxin on the body; and (2) a convalescent stage during which paralytic phenomena are developed as a result of the action of toxone on the peripheral nerves. The determination of the duration of the acute toxic stage is by no means simple, because paralysis may come on before this stage is ended and, moreover, the two stages are not sharply divided by a fall of temperature or marked alleviation in the acute symptoms. In addition to this the local symptoms may have completely subsided and yet the patient is not free from death from acute toxæmia. The most trustworthy indication is undoubtedly the time at which death may occur and from the records of cases during eight consecutive years at University College Hospital I have found this time to be on the average the tenth day of the disease, the earliest being the third or fourth and the latest the fifteenth. This observation agrees with most of those made during the numerous epidemics of the disease which have occurred and therefore it may be stated generally that death usually takes place some time during the first fortnight but that in a few cases life may be prolonged into the third week. Further, the incidence of paralysis[5] is greater during the third week than at any other time. Hence, taking these two facts together, the patient can never be considered safely

[1] This paper was communicated to the Medical Society of London on Nov. 28th, 1904.
[2] Martin: Supplement to the Local Government Board Reports, 1891–92; and THE LANCET, August 3rd, 1895, p. 287.
[3] Ehrlich: Die Wertbemessung des Diphtherieheilserums, 1897.
[4] Arrhenius and Madsen: Toxines et Antitoxines, Centralblatt für Bakteriologie, &c., Sept. 23rd, 1904.
[5] Goodall: On Diphtheritic Paralysis, Brain, Parts lxx. and lxxi., p. 286.

over the acute stage of diphtheria until the end of the third week.

Having defined the difference between these two stages I shall now consider the clinical and pathological aspects of the acute stage of the disease in support of the view that the toxin of diphtheria kills by its direct action upon the heart and its nervous mechanism. The following remarks apply to uncomplicated cases only and exclude those in which death is due to asphyxia from laryngeal involvement. Aretæus[6] the Cappadocian, in the second century described ulcers about the tonsils, including the Egyptian and Syrian ulcers. He stated that if the disease spread to the thorax by the windpipe it occasioned death by suffocation; if it spread to the mouth the patient died from inflammation, fever, fœtid smell, and want of food. The Spanish and Italian physicians of the sixteenth and seventeenth centuries described epidemics of a disease which Bretonneau[7] subsequently identified as malignant angina and the disease of Aretæus and to which he gave the name of diphtheria. At that time death was considered to result from occlusion of the air tubes and the names "garotillo," "morbus strangulatorius," and other synonyms indicative of suffocation were given to it. In his earlier writings Bretonneau shared this view and showed that the "croup" of Francis Home was identical with diphtheria. However, more than 30 years after his first work on diphtheria was published he states in his fifth memoir[8] that he had seen cases of toxæmia in which life was destroyed without closure of the larynx but that he had never read of such cases in the literature. He compares death in these cases to that which occurs in poisoning by cantharides.

It is, however, to Trousseau[9] that we owe the most complete and definite account of the symptoms of systemic intoxication in diphtheria and his vivid description applies exactly to the disease as we see it to-day. In describing a case he says: "The little patient grew cold, like a cholera patient; she had a tendency to lipothymia; her pulse was exceedingly weak and slow, but her breathing was free. We tried in vain to get her to swallow something and to overcome her utter loathing of food. Although there was perceptible diminution of the glandular enlargement; although the state of the nose was better, inasmuch as there was no longer any secretion of the fœtid ichorous discharge; although the erysipelatous redness had disappeared; although, looking only to the local manifestations, amendment had taken place, that amendment was deceitful, and the child died poisoned by the diphtheritic poison. In the act of refusing to drink, and in turning away from the nursing sister she fainted and died without coming out of the faint. This manner of dying is frequent in malignant diphtheria."

Putting aside the local symptoms of diphtheria the systemic poisoning is rendered evident by chiefly three classes of symptoms: (1) Progressive heart failure; (2) diminished amount of albuminous urine which in comparatively rare cases may be completely suppressed; and (3) vomiting. These phenomena stand apart from all the others which are of irregular occurrence, such as general hæmorrhages and so forth. Consciousness is retained to the end of life and there is no evidence that the brain is affected beyond in some cases a little drowsiness from which the patient can be completely roused at any moment. The great prostration which occurs in the worst cases is in part due to heart failure and in part to a direct action of the toxin upon the motor cells of the spinal cord, as I shall show later.

The *heart symptoms*, which are invariably present, commence in the majority of cases a few days before death, and although death may occur on the same day as the signs are first noticed yet life may be prolonged for a week or more after the symptoms of heart failure have appeared. The time of onset of cardiac failure is some time during the first week of the disease, especially about the sixth day. The first sign is noticed in the pulse, which becomes very compressible, as a rule rapid but at times slow, and almost always irregular in force and rhythm. The cardiac impulse may be diffused and slapping, the first sound at the apex feeble and short, and the second pulmonary sound accentuated. Irregularity of the pulse is much commoner than is supposed, but frequently it is not noticed as the pulse varies from hour to hour and may appear to be quite regular if only casually examined. Sometimes before death the pulse becomes remarkably slow and this slowing is a very fatal sign. The pulse grows progressively weaker and more irregular till it is imperceptible and in this condition the patient may linger for hours or even days, finally to die from syncope. Death may be quite sudden if any strain is thrown on the heart, as, for instance, vomiting or struggling. The face is remarkably pale and waxy-looking, the lips are cyanosed, and as the pulse fails the surface becomes cold and the patient restless. The respirations are sometimes sighing or irregular. All these symptoms are referable to a *primary failure of the heart*.

In addition to its action upon the heart the diphtheria toxin also directly affects the *kidney*, and probably also indirectly through its nervous mechanism, leading to a diminution in the amount of urine and to the presence of albumin; but this action upon the kidney cannot lead to the death of the patient unless the urine is completely suppressed, because most diphtheria patients have albumin in their urine and the urine of patients who recover may be diminished to one ounce in the 24 hours. Complete suppression of urine is comparatively rare and when it does occur the symptoms of heart failure are nearly always well marked when the suppression commences and are not secondary to it. Fatty degeneration of the renal epithelium is the most constant microscopic lesion found or the kidney may appear to be practically normal.

Whether the *vomiting*, which is independent of the taking of food and is not present in every fatal case, is secondary to heart failure or to partial or complete suppression of the functions of the kidney is a difficult question to answer. At any rate, it can be definitely stated that uræmia never occurs in diphtheria apart from acute Bright's disease, which is a rare complication.[10] This absence of uræmia was noted by Sir William Gull[11] in 1859. Vomiting has been supposed to depend upon fatty degeneration of the stomach[12] as it may occur before heart or kidney symptoms are present, but I cannot think that such a lesion would give rise to vomiting. As I shall show later, acute degenerative changes occur in the motor nucleus of the vagus and it seems probable to me, if we are to regard vomiting as a separate entity, that such a lesion would be more likely to initiate this symptom than would fatty degeneration of the stomach, especially as considerable irritation of the fauces is present, which no doubt is responsible for the transmission of abnormal nerve impulses to the hypersensitive centre.

Hitherto I have only considered those cases in which the patient has received a fatal dose of toxin, and as we saw that in such cases primary heart failure was invariably present, although vomiting might be absent and a fair amount of urine might be passed, so in the milder types of the disease we see that heart failure is the most constant symptom of systemic infection. Out of 177 cases carefully examined by Villy[13] 155 showed signs of heart failure. These signs are evidenced, as in the fatal cases, by irregularity or intermittence of the pulse with or without the physical signs of cardiac dilatation. They commonly begin about the end of the second week—i.e., rather later than in fatal cases—but may be noticed in the first or not until the third week of the disease and they continue from two to six weeks but in some cases for four or five months. As long as any irregularity of the pulse remains it is dangerous to allow any strain to be thrown on the heart, as this is the class of case in which sudden death is liable to occur during convalescence. It is probable that if the heart and the pulse were carefully examined in such cases of sudden death some signs of heart failure would very frequently be found. Cases are often seen in which the strain of getting up too early, undue excitement, or vomiting initiates heart failure during convalescence, thereby bringing into evidence a latent weakness of the heart.

A case which was brought to my out-patient room at the North-Eastern Hospital last August illustrates the fact that this latent weakness of the heart may be brought into prominence at much later periods following the disease. The patient, a boy, aged 11 years, had had two fainting attacks in which vomiting occurred during the past six months, each

[6] Aretæus: On the Causes and Symptoms of Acute Diseases, book i., chapter ix., Sydenham Society, 1856.
[7] Bretonneau: First Memoir, New Sydenham Society, p. 5.
[8] Bretonneau: Fifth Memoir, New Sydenham Society, p. 173.
[9] Trousseau: Clinique Médicale de l'Hôtel-Dieu de Paris, dixième édition, tome i., p. 455.
[10] Cadet de Gassicourt: Traité Clinique des Maladies de l'Enfance.
[11] Gull: Report of the Medical Officer to the Privy Council, 1859.
[12] Villy: Vomiting and Cardiac Failure in Connexion with Diphtheria, Medical Chronicle, 1899, p. 391.
[13] Villy: Ibid.

being referable to strain. He had had diphtheria four years previously and by the kindness of Dr. E. W. Goodall I obtained access to the notes of the case which were taken whilst he was in the Fever Hospital. Here it stated that the patient had an irregular pulse during an attack of diphtheria, thereby indicating that the heart had been affected. When I saw the patient he was pale and his pulse was irregular and intermittent, although the heart showed no signs of dilatation. By October he had quite recovered and no irregularity whatever could be detected in the pulse.

It is impossible to describe the irregularity of the pulse in acute diphtheritic poisoning, as it does not conform to any type: every degree and variety occur, together with intermittence. In addition to this the pulse alters considerably in both degree of irregularity and in frequency during the 24 hours and these changes often occur at very short intervals. Very commonly when the pulse is irregular the frequency is diminished and when it becomes regular the frequency is increased. The following is a table showing these changes occurring in the pulse in one of my cases.[14]

	Time.		Frequency.	Regularity.
Nov. 13th	5	A.M.	71	Very irregular.
	7	,,	120	Regular.
	8	,,	90	Irregular.
	9	,,	—	Slightly irregular.
	11	,,	86	,,
	3	P.M.	96	,,
	5	,,	108	Regular.
	9	,,	82	Irregular.
	10	,,	79	Slightly irregular.
Nov. 14th	2.30	A.M.	66	Very irregular.
	4	,,	88	Irregular.
	6	,,	104	Regular.
	7.15	,,	96	Slightly irregular.
	8	,,	89	Irregular.

The pulse became irregular on the ninth day of the illness and was quite normal on and after the forty-eighth day. The heart showed signs of dilatation on the ninth day and was apparently normal again on the thirtieth day. After the fauces were clean the child was quite well and lively and it was only on examining the heart and pulse that anything could be found amiss. Apart from irregularity the frequency of the pulse may be affected alone and whilst as a rule it is rapid, exceptionally it may be slow. Generally the patient appears to be quite well and suffers no inconvenience or distress on account of the heart failure.

Dropsy[15] has been described but it must be of very rare occurrence now, whatever it was formerly when these patients were allowed to get up.

With regard to the association of irregularity of the pulse with paralysis, it is not surprising to find that when paralysis comes on in the acute stage it is usually preceded by such irregularity because the latter is so common in this stage. During the convalescent stage paralysis may also be preceded by an irregular pulse which is often determined by vomiting, or the irregularity may occur after the paralysis is established. Tachycardia is sometimes seen during convalescence. When death occurs from heart failure during the paralytic stage it is usually the result of vomiting and wasting or is secondary to paralysis of the respiratory muscles. From the pathological aspect of the subject ample evidence is forthcoming that death in acute diphtheria results from a direct action of the toxin upon the neuromuscular mechanism of the heart.

As soon as the importance of heart failure in diphtheria had become established a pathological cause was sought for. As early as 1842 Werner[16] described cardiac thrombosis and associated it with death in this disease. This theory was strongly supported at the time but was soon abandoned and it is now known that cardiac thrombosis is a rare complication of diphtheria and that when it occurs it is probably the result of a secondary infection, as shown by Woollacott[17] in three cases. Barbier and Alquier,[18] however, still adhere to it and state that cardiac thrombosis is the most frequent cause of death in diphtheria from an investigation of 45 necropsies. In 1864 John Bridger[19] at the thirty-second meeting of the British Medical Association described endocarditis in diphtheria and regarded it as the cause of death in his cases. Bouchut and Labadie-Lagrave[20] also maintained that endocarditis occurred in diphtheria. This theory also was soon given up. With regard to changes in the myocardium, it has been recognised that fatty degeneration of the muscular fibres is of common occurrence, since Bristowe[21] in 1859 described this lesion in a case of diphtheria.

Space does not permit me to mention here the numerous observers who have confirmed this. One of the best series of cases, as yet unpublished, has recently been worked out by D. Brewer at the Homerton Fever Hospital. Out of 39 consecutive cases dying from acute diphtheritic poisoning he has found excessive fatty degeneration of the heart in every one. He has also examined eight cases which died later in the disease and his results show that fatty degeneration is much less likely to be seen and that it is less extensive than in the acute stage, but that interstitial changes, as described by Leyden and others, are liable to be found.

Sidney Martin[22] proved experimentally that fatty degeneration and cloudy swelling of the heart muscle were the results of poisoning by diphtheria toxin and he concluded that they were the cause of death. Various continental observers, notably Leyden[23] in 1882 who gives accounts of three cases, and Rabot and Phillippe[24] in 1891 who examined five cases, on the other hand, whilst allowing that fatty degeneration occurs in the acute stage of the disease deny that it produces recognisable heart symptoms. They state that any signs which might perhaps depend upon degeneration of the myocardium are confounded with the symptoms of general infection, and they further maintain that heart failure occurring during the convalescent stage is the result of an interstitial myocarditis of a patchy distribution. In 1900 Thomas and Hibbard[25] communicated a paper on Heart Failure in Diphtheria. Their results are based upon 14 post-mortem examinations and they conclude that there is gradual degeneration of the heart muscle accompanied by œdema and interstitial infiltration; on analysing their cases, however, I can only find descriptions of the microscopical examination of the hearts of five of them. In all the 14 cases degenerative changes were found in the vagus, whereas Leyden states that he found no changes in this nerve. Rabot and Phillippe state that they have found the central and peripheral portions of the nervous system normal in several cases.

I shall next consider the evidence in favour of the view that acute degenerative changes occur in the central nervous system in diphtheria, including the motor nucleus of the vagus. Vulpian[26] in 1876 and Déjerine[27] in 1878 described changes in the anterior cornual cells and since their time numerous papers have been written on the subject, some observers finding changes whilst others have found none. I should like to draw especial attention to the fact that much of this work has been done on cases of diphtheritic paralysis and many observers have found the central nervous system to be normal in this condition.

All these negative observations are of value in confirming the point to which I now wish to refer—namely, that it is in the *acute stage* of diphtheria that degenerative changes occur in the central nervous system as a result of the action of toxin and not in the paralytic stage, the symptoms of which are referable to the action of toxone. If the patient has lived to become paralysed his dose of toxin has been only moderate or it has been neutralised by antitoxin, and, therefore, any changes in the central nervous system would be relatively slight or the cells would have recovered. This is

[14] Bolton: The Heart in Diphtheria, Edinburgh Medical Journal, April, 1902, p. 341.
[15] Rabot et Phillippe: De la Myocardite Diphtéritique aiguë, Archives de Médecine Expérimentale, vol. iii., p. 647. Also cases in the Report of the Medical Officer of the Privy Council, 1859.
[16] Werner and others, quoted by Leyden: Ueber die Herzaffectionen bei der Diphtherie, Zeitschrift für Klinische Medicin, 1882, p. 334.
[17] Woollacott: THE LANCET, May 6th, 1899, p. 1217.
[18] Barbier et Alquier: Presse Médicale, x., 1902, p. 595.
[19] Bridger: Medical Times and Gazette, 1864, vol. ii., p. 201.
[20] Labadie-Lagrave: Des Complications Cardiaques du Croup, &c. Thèse de Paris, 1873, No. 117.
[21] Bristowe: Cases of Diphtheria, &c., Medical Times, 1859, August 20th, pp. 180, 210, 227.
[22] Martin: Loc. cit.
[23] Leyden: Loc. cit.
[24] Rabot et Phillippe: Loc. cit.
[25] Thomas and Hibbard: Boston City Hospital's Reports (eleventh series), 1900, p. 204.
[26] Vulpian: Leçons sur les Maladies du Système Nerveux, 1876.
[27] Déjerine: Recherches sur les Lésions du Système Nerveux dans la Paralysie Diphthéritique, Archives de Physiologie, 1878.

exactly analogous to fatty degeneration of the heart, which is most extensive in fatal cases in the acute stage, but is only relatively slight or absent in cases surviving this stage. Mouravieff[28] in 1897 investigated the subject experimentally and found that in the acute stage there were marked degenerative changes in the motor cells of the spinal cord and that in animals surviving this stage degeneration was unlikely to be seen. Crocq[29] had previously in 1895 found similar changes. Rainy[30] in 1900 also found experimentally acute changes in the spinal motor cells. In 1902 I examined[31] the neuro-muscular mechanism of the heart in 11 cases of acute diphtheria in Dr. F. W. Mott's laboratory at Claybury. In all 11 cases I found acute degenerative changes in the medulla oblongata, the motor nucleus of the vagus being affected, and in all the 11 cases there was extensive fatty degeneration of the heart. The vagus nerve was normal in every case. In two cases which died from asphyxia and showed practically no symptoms of systemic intoxication I found only occasional and slight changes in the central nervous system and cloudy swelling of the heart muscle. In conjunction with Dr. S. H. Bown, resident medical officer at University College Hospital, London, I am now repeating this piece of work experimentally and so far our results confirm those of Crocq, Mouravieff, Rainy, and others. Degeneration in the vagus nerve, although it does not occur in the acute toxic stage of diphtheria, occurs in the paralytic stage and was described as early as 1879 by Schech.[32]

To sum up the present state of our knowledge with regard to the chief pathological changes in diphtheria it appears that as a result of the action of toxin there are produced fatty degeneration and cloudy swelling of various organs of the body, especially of the heart, and acute degeneration of the cells of the lower nerve centres; that after the acute stage of the disease has passed degeneration in the peripheral nerves occurs as a result of the action of toxone; and at this stage fatty degeneration of the heart and degeneration of the nerve cells are less likely to be prominent features but that interstitial changes are liable to be found in the heart.

In conclusion, it is seen from the clinical aspect that death in acute diphtheritic toxæmia is due to primary heart failure and to account for this extensive fatty degeneration is found in the heart and acute degeneration in the motor nucleus of the vagus. It cannot be definitely stated whether the acute changes in the vagus nucleus would produce irritation or paralysis of the vagus. It is, however, quite likely, as all stages of degeneration are found at the same time, that both irritative and paralytic effects may be felt by different portions of the heart at the same time and that in some cases an irritative effect may preponderate whilst in others a paralytic effect may be chiefly evident. The probability is that irregularity of action would be the prominent feature, that this irregularity would be subject to great variations in degree, and that in some cases a slowing of the pulse might be expected and in others an increased frequency. Such a lesion would also be quite likely to lead to vomiting. The cardiac dilatation is the result of weakness of the heart wall. The irregular pulse and fatal syncope of acute diphtheritic toxæmia are therefore due to the disturbed innervation of an acutely degenerate heart. The heart failure exhibited in the acute stage by patients who recover is probably the result of similar though less extensive changes. At a later stage of the disease the results of these changes, together with interstitial cellular infiltration, are sufficient to produce a latent weakness of the heart which can be brought into evidence by some strain and in this stage, also, degeneration of the vagus nerve probably plays a not unimportant part.

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[28] Mouravieff: Archives de Médecine Expérimentale, Paris, 1897, tome ix., p. 1165.

[29] Crocq: Recherches Expérimentales sur les Altérations du Système Nerveux dan les Paralysies Diphtéritiques, Archives de Médecine Experimentale, tome vii., 1895, p. 507.

[30] Rainy: Journal of Pathology, 1900, p. 435.

[31] Bolton: Archives of Neurology, London County Asylums, vol. ii., p. 806.

[32] Schech: Deutsches Archiv für Klinische Medicin, Leipsic, 1879, Band xxiii., S. 152.

THE CANCER PROBLEM.[1]

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IN the following simple story the correctness will be assumed of all the conclusions as to the etiology and nature of cancer which were advanced in, for example, the abstract of my lecture on the Problems of Cancer published in THE LANCET of Oct. 29th, 1904. The appended classification of neoplasms, an extension and inclusion of the "embryomata" of Wilms, may serve to make clear what in this paper a malignant tumour is defined to be.

1. *Embryomata.*—Benign neoplasms. Pathological manifestations of some greater or less portion of an embryo. They are composed of real tissues—that is, normal or somatic ("embryonic") cells or tissues. At its basis each is a greater or less portion of a twin, triplet, quadruplet, &c., identical with the individual containing it. They are not endowed with indefinite powers of growth and they nourish themselves like other normal tissues.

2. *Amphimixomata.*—Malignant neoplasms. Combinations of embryomata and trophoblastomata. Pathological manifestations or attempts to reproduce the whole life-cycle including trophoblast and embryo. They are transitional forms. (The mixed tumours of Wilms are not all malignant, some being merely embryomata.)

3. *Trophoblastomata.*—Malignant neoplasms. Pathological manifestations of the asexual portion (trophoblast) of the life-cycle and sometimes, whether or not always is not at present known, attempting to repeat the germ-cell portion of the life-cycle, as shown by the researches of Farmer, Moore, and Walker. They are not known to differentiate actual functional gametes, eggs and sperms. They never include or repeat any part of an embryo. They are never composed of somatic ("embryonic") cells, though they may mimic such or even resemble no other cells in the body. As Sir James Paget pointed out long ago,[2] they are "imitation issues." They exhibit powers of unlimited growth and increase and they nourish themselves by eroding and destroying normal cells and tissues in a manner exactly like that of the trophoblast of normal development.

To illustrate the points to be considered I have put out certain microscopical preparations of transient ganglion cells, parts of the asexual generation of a dogfish. These may be taken to typify the trophoblast of a mammal or the cells of a malignant tumour. The preparations show: (*a*) cells in full functional activity prior to the critical period, and (*b*) cells which with the passing of the critical phase have entered upon their long, slow course of degeneration

[1] An abstract, with sundry subsequent alterat'ons and additions, of a paper read before the Edinburgh Pathological Club on Dec. 13th, 1904.

[2] The designation of a malignant neoplasm as an "imitation tissue" was first used by the writer about a year ago in an address to the Edinburgh Pathological Club. The clear recognition of the existence of such "imitation tissues," as well as of the close resemblance, amounting to identity, of benign tumours to normal tissues, will, however, be found in Sir James Paget's classic work, "Lectures on Surgical Pathology," third edition, 1870, pp. 382 and 387. This book is a veritable treasure-house of valuable information. History does indeed repeat itself and, according to Virchow, in 1815 Fleischmann explained that the tumours were "nur Kopien normaler organischer Theile eben desselben Leibes, in welchen sie hervorgehen und bestehen." The authority of J. F. Meckel, according to Virchow, prevented the acceptance of this most important conclusion; indeed, this anathema has persisted or been renewed since that time, for to-day (1905) the conclusion, rightly drawn by Fleischmann 90 (!) years ago, is not accepted, so far as I am aware, by any living pathologist. "Eppur si muove!"

by simple atrophy. It would have been preferable to exhibit preparations of trophoblast, but those made after this method some years ago are now faded. The facts in the two cases, the mammal (sheep, pig, and others) and the fish (scyllium, raja, and others), are, however, quite similar. There is, indeed, only one mode of development in vertebrate animals. Freshly made preparations of human trophoblast of, say, the fifth and ninth weeks of gestation would display the like bloom on the one side of the critical period and the same decay on the other. Such figures of mammalian trophoblast have, indeed, already been published in the writings of my friend Dr. J. P. Hill.

The question which I wish to discuss is one which interested me exceedingly some years ago, long before its significant bearings upon the cancer problem were obvious. In a nutshell it is this: Why do these and certain other cells of a fish development, like those of the mammalian trophoblast, go on flourishing for a certain definite portion of the early development, whilst the parts of the sexual generation, "the embryo," are unfolding, and then with an almost tragic suddenness commence to degenerate and die? What brings this remarkable change to pass, one which in human development is lacking, if "the embryo" be absent or very abnormal?

Cancer is an irresponsible trophoblast. The unfolding of an embryo would stay its growth just as the formation of the sexual generation ends the growth of a shoot of a flowering plant. How does "the embryo" bring about this result? It does not devour the trophoblast but it must produce something which, as was pointed out two years ago,[3] brings the degeneration to pass. Only in ordinary chorio-epithelioma is the malignant neoplasm a persisting portion and derivative of the trophoblast of the immediately previous gestation. Any ordinary cancer or sarcoma is a new development of trophoblast, due to the attempt of a germ cell to start the cycle anew. Except in mode of nutrition this irresponsible trophoblast does not resemble normal trophoblast, but it often mimics the structure in which it lies or it is like no other organ or tissue in the body. In any and every mammalian (Eutherian) development there is the potentiality of a malignant tumour,[4] chorio-epithelioma, and this danger exists until the degeneration of the trophoblast is an assured but not completed fact. As researches made some years ago, but never published, demonstrated, in the pre-critical period the staining of the trophoblast cells resembled that of the functional transient ganglion cells—with methyl-blue eosin they took on an exquisite blue stain. With the passing of the critical period the cells of the trophoblast, as Hill has shown for the bandicoot (perameles), no longer took on the blue stain but absorbed ever more and more the red eosin. The like change will be noticed in the transient ganglion cells of the fish; it is also seen in the merocytes of the yelk.

Rather less than two years ago I really commenced to work at the problems of malignant neoplasms from their embryological aspects. The starting point for research here was obtained from certain results of prolonged investigations into the mode of vertebrate development. From these it had been established beyond question that in the normal life-cycle of development in any of the higher animals there were two generations—an asexual one, the "larva" or phorozoon, and a sexual one, "the embryo"—that the former was mainly, if not entirely, represented in mammalian development by the trophoblast, and that in every normal development the trophoblast was suppressed by the sexual generation, its degeneration commencing at the critical period with the completion of all the parts of the embryo. For the past eight years it had been recognised that at the critical period a change in nutrition always occurred. In 1902[5] the conclusion was advanced that cancer was an irresponsible trophoblast, the continued and unbounded growth of which was favoured by the absence of an "embryo" or sexual generation.

At that time there appeared to be one hopeful outlook for cancer research along the lines of embryology. It was that in every normal development the trophoblast, which in the absence of a completed embryo might become a malignant tumour, chorio-epithelioma, was invariably suppressed and degenerated. The task was to find out how this came about. For there appeared to be good reason for the hope, if not for the sure belief, that the factor or factors which brought about this result in normal development might also be potent when directed against an irresponsible trophoblast or cancer. To find these factors would be the solution of a general scientific problem of which apparently cancer was but a special case. These factors have now been found and in consequence cancer ceases to be a problem for the embryologist. A scientific solution of a certain problem has been obtained; whether or not this be at the same time a solution of the cancer problem in its medical aspects would not be for the embryologist to predict. He can only guarantee the truth of the embryological findings and conclusions and maintain that these would remain, even though they should utterly fail when applied in the treatment of malignant tumours.

The change in nutrition initiated at the critical period in vertebrate animals, from fishes to man, is based in the commencing functional activities of the pancreas. This introduces an alkaline digestion by means of the pancreatic juice with its various ferments. But what of the pre-critical nutrition? There are many ways in which this might be investigated. One might examine normal trophoblast, cancer or sarcoma, blastoderm of a fish, such as the skate, cleaved eggs of an amphibian, or blastoderm of a bird, all these being in the main homologous structures or asexual generations. What is found to obtain in the one must hold good in the others, for there is but one mode of vertebrate development. In this direction, when dealing with the yelk and merocytes of fish development and with the mammalian trophoblast in past years, some results had already been obtained; and in taking up the thread anew one's thoughts naturally reverted to the chick blastoderm as a readily obtainable material. Then came the recollection that the work had already been done for the chick and frog. In a recent publication Professor M. M. Hartog[6] writes (p. 587): "One thing is clear as the result of this; all probability henceforward is in favour of the view that in the animal, as in the plant, a cell can only utilise its reserves secondarily and mediately—by the internal secretion of an enzyme." The author commences his paper by commenting upon the known facts that it has been shown in every case examined that in the utilisation of reserves in plants a ferment or enzyme is always present, which in suitable circumstances can effect *in vitro* the same process, usually of hydrolysis, which the living organism performs. He next proceeds to demonstrate that in the early development of animals, in the cells of the frog's egg in which cleavage is ended but no embryo yet present, and in the blastoderm of the three to four days' chick, there is a proteolytic ferment present. Under proper precautions this in acidulated solution (from 0·3 to 0·7 per cent. hydrochloric acid) gives the biuret reaction showing the presence of peptone. The reaction is absent in neutral or slightly alkaline solution. On p. 587 he arrives at the important conclusion that the digestion in the frog's egg (prior to the appearance of an embryo) and in the blastoderm of the chick (with the embryo removed) must be a purely intracellular acid one. For comparative and other reasons I now apply this conclusion to the trophoblast of a mammal and to the cells of a malignant neoplasm. No more than those of the trophoblast do the cells of a cancer contain yelk. None the less, in both the digestion must be the "ancestral" acid peptic (intracellular) one, characteristic of the asexual generation of a vertebrate, for this has been handed down as an unconscious memory from the time when the mammalian yelk sac contained food material. Recent researches, especially those of Vernon, have revealed the presence of traces of trypsin in many organs of the body. But this enzyme has never been, and cannot be, demonstrated in any malignant tumour. On the contrary, the work of Petry[7] on many carcinomata and sarcomata has proved the

[3] THE LANCET, June 21st, 1902, p. 1758.

[4] So far as is at present known chorio-epithelioma does not occur in any mammal except man. The multiplicity of embryos in most other cases is against its happening. In almost every gestation in the pig, and often in the rabbit, there are abortive embryos from the trophoblast of which a malignant tumour might arise but for the presence and influence of the other embryos. In the course of the discussion the case of a full-time anencephalic human fœtus was cited as against the validity of the conclusions advanced. In this the entire alimentary canal and pancreas were absent. A little cross-examination elicited the information that nothing was known as to its fœtal membranes and that it was one of twins. The latter point is decisive in explaining how this monster had escaped the weeding out of the critical period. Had it been a single embryo, not a twin, it would undoubtedly have been aborted at the critical period and, moreover, hydatid mole or chorio-epithelioma would very possibly have followed.

[5] THE LANCET, June 21st, 1902, p. 1758.

[6] M. M. Hartog: Some Problems of Reproduction, II., Quarterly Journal of Microscopical Science, vol. xlvii., pp. 583–608, 1904.

[7] Eugen Petry: Ein Beitrag zur Chemie Maligner Geschwuelste, Zeitschrift für Physiologische, Chemie, vol. xxvii., 1899, p. 398.

occurrence in these of a proteolytic ferment. From the author's account of his researches this is evidently of an (? intracellular) acid nature, like that recorded by Hartog for the chick blastoderm, &c. Petry's work is cited in the latest edition (1903) of Hoppe-Seyler's "Handbuch der Chemischen Analyse" (p. 387) as proving the presence of enzymes in malignant tumours.

In this connexion it would be of interest to cite some of the discussions upon "Extrazellulare und Intrazellulare Verdauung" and upon the enzymes or ferments in Verworn's "Allgemeine Physiologie" (p. 161 *et seq.*). In studying the history of the yelk sac of fishes I made many observations upon this question some years ago. At times one meets with cases in the yelk sac which are more "extracellular" than "intracellular." Ultimately, indeed, the latter passes into the former. In the sequel, therefore, the term "intracellular" will be used within brackets to indicate not so much its actual nature nowadays as its origin in past times from a real intracellular digestion occurring in the presence of yelk. In the chick or skate the yelk is contained in a yelk sac; in a frog within the cells of the cleavage. None the less, the ferment is the like one.* The trophoblast of normal development, like the trophoblastoma of chorio-epithelioma, nourishes itself by an (intracellular) acid digestion. A malignant tumour, a cancer or sarcoma, nourishes itself in exactly the like manner. Like the trophoblast, it eats and erodes its way, destroying tissues by an (intracellular) acid digestion. Only by such could a cancer erode bone. To describe in detail what should follow would be to recite much of two papers[9] published long ago as well as some other points noted since that time. The solution of the question is possibly the resolution of the problem of cancer. The mammalian embryo solved this ages ago; indeed, it "inherited" the solution from "ancestors" much lower down in the scale. The very existence of "the embryo" throughout the higher animals is dependent upon the suppression, the degeneration and death, of the asexual foundation upon which it came into being. In many invertebrata the sexual generation eats up (often by phagocytes) the asexual foundation or "larva"; and it must be recognised that in the higher forms it practically digests it. On the present occasion no account of the work required to establish it need be given; much, not all, of it is contained in my published memoirs. The fact may be stated briefly that in fish and mammal alike it is the commencing functional activity of the pancreas which initiates the degenerative changes in the asexual generation. At this epoch, the critical period, the fish commences to feed itself on yelk, not by an (intracellular) acid peptic digestion but by an alkaline panoreatic one. In some of the text-books of physiology stands the statement that the human pancreas at birth "contains trypsin and the fat-decomposing ferment but not the diastatic one (Zweifel)"; but, as I know from my comparative observations of years past, its activities really commence at the time the anus is formed, early in the seventh week of gestation, at a period when in the days of long ago the organism would have begun to digest the yelk of its now empty yelk sac. The pancreas functions throughout fœtal life in a mammal though it has nothing to digest except the trophoblast.

During fœtal life the pancreas is pouring out its secretion into an intestine which at the present day contains no food to be digested, for the food of the fœtus has been prepared by the pancreatic digestion of the mother. To the fœtus in utero this alkaline digestion is of no direct use but it has an indirect import in acting upon the trophoblast. The commencing activities of the pancreas during fœtal life initiate an alkaline digestion by means of the most powerful and important of all the digestive juices, the pancreas. To which of its ferments the observed results be due does not concern us. If the secretion be absent, neither the asexual structures of a fish development nor the cells of chorio-epithelioma do, or can, degenerate.

Under the conclusions already advanced regarding the nature of cancer as an irresponsible trophoblast, in consideration of the facts regarding the acid and eroding action of the trophoblast and of carcinoma, and in respect of the fact that in the absence of a completed embryo or fœtus and its pancreatic secretion the trophoblast may become one of the most deadly of malignant tumours, chorio-epithelioma, it must be clear that nature itself has possibly provided a remedy for cancer and the pernicious (intracellular) cancerous digestion of the trophoblast in the secretion of that important digestive gland, the pancreas. This structure, I understand, is very rarely the seat of a primary carcinoma, and almost never of a sarcoma.[10] Moreover, it is very important to note, that just as cancer is found everywhere in the vertebrata, just as there is one mode and one only of vertebrate development, so the pancreas and its secretion are a common heritage of vertebrate animals.

Briefly, as I conceive it, in normal development and in a malignant tumour the matter is simply a question of the victory of a stronger enzyme over a weaker one. In view of all this the events in a malignant tumour, such as, for example, the "heterotype" mitoses, lose much of their importance. They may still possess an interest for the cytologist and embryologist and even a passing one for the pathologist. But to the physician and surgeon these abortive attempts to form gametes cease in treatment to have any import whatsoever.

Practically all that was sought after from my own researches regarding cancer has now come to light. Embryologically, the problem of cancer has been to discover the antithesis of two enzymes and in particular to find out the enzyme capable of destroying a weaker one and thus of leading to the degeneration of the tumour by simple atrophy. The whole story is but another example of that antithetic alternation which underlies all the phenomena of living things. The solution of the problem of the functional relation of embryo and trophoblast, how the latter nourishes itself by an (intracellular) acid peptic digestion and degenerates slowly by a pancreatic digestion, becomes at the same time the embryological, if not the medical, resolution of the problems of malignant neoplasms, as well as of chorio-epithelioma. As an embryologist who is not a physician or surgeon my task is ended. The further applications of the scientific and theoretical solution of the problem may safely be left in the hands of those who know far better how to employ it. But they may not forget that in nature the degeneration and disappearance of these asexual structures, sometimes quick, are often exceedingly slow, though sure. Not that it is likely that the surgeon has removed his last malignant tumour but that, as one of the results of the work[11] begun more than 16 years ago, the physician has possibly had forged for him a light and not dangerous weapon, only second, if not equal, in potency to the surgeon's knife.

* It should not be forgotten that, as Verworn remarks (op. cit., p. 171) there exists a "ganze erdrueckende Fuelle von Enzymen." Hartog would seem to assume that the one discovered by him in the cleaved frog's egg and in the blastoderm of the chick, which must be common to the asexual generations of vertebrates, is the same as, for example, the enzyme of the mammalian stomach. It may be, but for present purposes it is not needful to insist upon this. Here it will be maintained that this enzyme of the blastoderm, trophoblast, or malignant tumour can only act in a slightly acid medium and that in all probability it is a much weaker one than that characteristic of the pancreas. The existence of the asexual enzyme and of the sexual one may account for the necessary existence of a gastric and an intestinal digestion. The sexual generation is of later origin in time than the asexual one, and its evolution has been bound up with that of a new digestive gland and enzyme, the pancreas, &c.

[9] J. Beard: Certain Problems of Vertebrate Development, 1896, and the Span of Gestation and the Cause of Birth, 1897, both published by Dr. Gustav Fischer, Jena.

[10] Two recently recorded cases of tumours of the pancreas may be cited. In the Berliner Klinische Wochenschrift, 1904, p. 479, Herr Ury "berichtet ueber einen Fall von Pancreas-carcinom mit Fett-Stuehlen, welche durch Darreichung von Pancreon wesentlich gebessert wurden," and in the Journal of Medical Research, Boston, vol. viii. 1902, pp. 385–95, A. G. Nicholls records a "simple adenoma of the pancreas." The first shows that the pancreas was not properly functioning, while the second, in which the tumour was not larger than a marrow fat pea, illustrates the difficulties encountered by tumours in this organ.

[11] Most of the work has been carried out in the University of Edinburgh, latterly with grants from the Moray Research Fund and the Carnegie Trustees.

INTERNATIONAL SOCIETY OF TUBERCULOSIS.—A new scientific society has just been founded in Paris under the name of "Société Internationale de la Tuberculose." Its office is in Paris. Meetings are held monthly on notice from the general secretary. The scope of this association is the study of all questions concerning tuberculosis and the centralisation of means of defence. Its work will be published. The association is composed of medical men or men of science holding degrees or diplomas from French or foreign universities and colleges. Admission may be obtained by application to the president, which application must be accepted by a committee elected at a general meeting. The annual subscription is 10 francs (9*s.*) For further particulars and for applications address M. le Docteur Georges Petit, general secretary, 51, Rue du Rocher, Paris, France.

THE CHARACTERS OF THE BACILLUS COLI AS AN INDICATOR OF EXCRETAL CONTAMINATION.

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THE fundamental importance of this organism as a test for excretal contamination need not be insisted upon here; it is fairly generally recognised. Also most observers are in accord as to what are the essential characters of a quite typical bacillus coli. The main point which is still unsettled is how far can an organism deviate from this typical bacillus coli communis and still have an equal significance as a test for excretal contamination. This is a very important practical question. At present much confusion prevails and the bacillus coli of one observer would not be accepted by another as an organism of equal significance. In giving the results of investigations with this organism it is usually advisable to specify exactly what is meant and to indicate all the tests employed and the results obtained. On the other hand, although a multiplicity of tests may make for increased accuracy, yet it is desirable in the interests of routine work to have a minimum number of tests which can be made and yet which will be sufficient to determine accurately whether or no any given organism can be classed as a bacillus coli, an indicator of fæcal contamination. It is from this point of view that this paper is written. The various characteristics generally employed will now be considered, only the ones in dispute being discussed in detail.

Morphology and tinctorial characters.—All observers agree that this organism is a short bacillus with rounded ends and showing no spores. It stains readily with ordinary aniline dyes but is decoloured by Gram's method of staining.

Motility.—The typical bacillus coli communis is described as a motile organism. Is it essential that each organism isolated should exhibit motility and if it does not are we to reject it as not being a true bacillus coli?

My experience of motility is that its exhibition by different races of bacillus coli is very variable. Among organisms otherwise giving in every respect all the characters of the typical bacillus coli some will be found to be sluggishly motile, some very actively motile, others exhibiting no motility at all. The methods used to examine for motility were either, or both, of the following: examination in hanging-drop preparation of a not greater than 24 hours' old broth culture or examination of young gelatin-slope cultures (after less than 24 hours' incubation at from 20° to 22° C.) in a hanging drop of sterile broth. Occasionally an organism non-motile by one method would be distinctly motile by the other. How far is this motility or non-motility a stable character and how far is it a question of environment? Gilbert and Lion divided the varieties of bacillus coli found in the stools of 60 healthy men into two groups: (1) motile and (2) non-motile. Other observers describe their results as variable.

Motility is a fundamental character and too important to be used as a mere variety differentiator. It must, I think, be accepted that all true bacilli coli are motile. The *exhibition* of motility is, on the other hand, largely a question of environment. If this is so the apparently non-motile bacilli coli should all be made to exhibit motility under suitable environment. I have made a considerable number of experiments in this direction from time to time and have in almost all cases been able definitely to show true motility in organisms otherwise quite typical but, when isolated, non-motile, sometimes by prolonged growth on artificial media, at others by varying the method of examination. My conclusions are that all true bacilli coli are motile but that when isolated many of them do not exhibit any motility. These on prolonged subcultivation or other appropriate means can usually be made to show motility. From this it follows that as a practical test for the diagnosis of this organism the presence of motility when isolated is of little or no value.

Liquefaction of gelatin.—It is usually accepted that the true bacillus coli does not liquefy gelatin, although some observers have described liquefying forms as members of this group. All liquefiers of gelatin should be excluded as not true organisms in my opinion. The cultivations should be kept in the incubator for at least two weeks.

Gelatin slope growth.—Rapid growth should take place at from 20° to 22° C., visible within 24 hours, and yielding within 48 hours a bluish, smooth, translucent growth which remains unaltered after two weeks' incubation. Slight variations are sometimes met with, the growth being in some races thicker and whiter than the typical bluish translucent variety. The variations in my experience are but slight and this is a most valuable culture test.

Gelatin surface colonies.—My experience of gelatin surface colonies is that while the majority are perfectly typical there are other types which are not uncommon and which are given by organisms typical in all other respects. The typical colonies are well developed after from 40 to 48 hours in the cool incubator, and under a low power of the microscope appear as flat colourless or pale brown colonies with an irregular outline and wavy indented margin. Over the surface and extending in from the margin, and particularly observable away from the centre, are a number of wavy lines (marmoration). Sometimes the colonies are uniformly granular and without these lines.

Next most frequently met with after the above (type A) is what I have called type B. These colonies are to the naked eye somewhat raised and circular, while they are whiter and more opaque than type A and generally somewhat smaller. Under a low power they appear as well-defined colonies, nearly circular, and with well-defined slightly wavy borders. They are brown, uniformly and finely granular all over, and without wavy lines. The colonies from bacillus coli when growing in unfavourable circumstances are sometimes still smaller and perfectly circular, with quite smooth well-defined margins. Under a low power they are brown and uniformly granular (type C). A small number of colonies of this bacillus are when isolated quite abnormal. These characters are independent of whether the organism is perfectly typical in other ways or slightly removed from the typical.[1]

These variations in the types of the colonies are mainly no doubt due to immediate environment, but also partly to acquired characters and the influence of more remote environment. As a rule, an organism giving atypical colonies can be induced by artificial cultivation subsequently to exhibit typical colonies. For practical purposes it will be found that frequently, indeed usually, the colonies are almost or quite typical particularly when the organism has been isolated from drinking water, yet the fact that they are not typical does not exclude them of necessity from being true bacilli coli.

Agar slope.—This is an abundant rapid growth but of no diagnostic significance. The uniform turbidity produced in *broth* is also of no diagnostic significance since it is given by so many organisms.

Indol production.—This is one of the classical characters of the bacillus coli. It may be shown in broth (sugar free) but is most reliably demonstrated in peptone-water cultures

TABLE I.

Source.	Number of bacillus coli examined.	Indol produced.	No indol produced.	Percentage giving indol reaction.
Water-supplies	135	127	8	94
Human excreta (healthy)	19	18	1	95
,, ,, (infantile diarrhœa)	10	10	0	100
Animal excreta	18	14	4	78
Sewage	5	5	0	100
Soil	12	12	0	100
Tidal river mud	38	34	4	89
Sea water and tidal river water	13	13	0	100
Shell-fish (all but one from cockles)	22	16	6	73
Flies	18	17	1	94
Totals...	290	266	24	91·7

[1] For further details see paper by the writer in the Journal of Pathology and Bacteriology, March, 1904.

(from 7 to 10 days old). Is this an essential character, and is an organism typical in every other way, but which does not produce indol, to be considered not a true bacillus coli communis?

The results of a number of bacilli coli recently worked out by me and isolated from various sources are given as regards indol production in Table I. In this table are only enumerated organisms which are typical in their other characters, such as acid production, fermentation of lactose and glucose, coagulation of milk, positive neutral red reaction, typical growth on gelatin slope and without any liquefaction of the medium. The formation of indol was tested for in peptone water (from 7 to 10 days' incubation at 37° C.) in every case, except for a few of the bacilli coli isolated from drinking waters, which were tested in ordinary broth. In these if a negative result was obtained with broth a further examination was made in peptone water cultivations.

From Table I. it will be seen that 8·3 per cent. of bacillus coli, otherwise typical, gave no indol when isolated. The percentage of negative results varied considerably with the sources of the organisms, being lowest (73 per cent.) for bacillus coli isolated from cockles. Are these 24 organisms, otherwise quite typical, to be rejected from the fold of the elect bacillus coli? It seems to me that the question turns upon the variability of this character.

I have from time to time re-tested a number of the above organisms which, when first isolated, showed no indol production, and in most of them I have been able to demonstrate subsequently true indol production in peptone-water cultivations after one week's growth at 37° C. In every case the method of indol testing has been to add from 0·5 to 1·0 cubic centimetre of 0·02 per cent. potassium nitrite solution and then six drops of pure sulphuric acid. The tubes were then either left for one hour at room temperatures, or for my later work kept for ten minutes at about 60° C. in a water bath.

I believe that under unfavourable conditions the power of indol production may be lost, to be subsequently often re-acquired if the conditions are more suitable. Many workers, however, do not recognise the possible variability of this character and Horrocks[2] states: "I have never been able by any treatment whatsoever to cause an organism, which when first isolated from *dejecta* showed no signs of indol formation, to assume that faculty." The italics are mine. That may well be so for dejecta but I believe that with less favourable environment this property may be lost.

For practical working purposes I would only reject an organism typical in all respects, except that no indol was formed, as not a true bacillus coli when after several weeks' growth in the laboratory and again testing in fresh peptone water it still failed to produce indol. That is, I should reject it as not having the full significance as an indicator of fairly recent excretal contamination which attaches to typical bacilli coli.

Production of acid.—Production of acid in litmus milk or in litmus whey is a constantly present character of bacillus coli communis. The formation of acid must be permanent since some allied organisms (bacillus enteritidis group) are characterised by the formation of alkali after a transient stage of acid production. I think that any organism which does not produce permanent acidity in litmus milk (or whey) should not be considered as a true bacillus coli. Out of many hundreds of bacilli coli isolated I have never found this character variable or absent.

Milk coagulation.—This is due in practically all cases to the formation of acid and in my experience commences when 32 per cent. of acid has been produced and is usually complete when about, or rather under, 40 per cent. has been produced.[3] It usually takes place within three days but the tubes should be incubated for at least two weeks at 37° C. before being rejected. Is this an essential character? Out of 250 bacilli coli isolated from different sources and which were typical as regards all the ordinary characters of this organism (this does not include gelatin surface colony characters or the possession of motility) only ten failed to coagulate milk. These ten all produced permanent acidity in milk but failed to clot it even when incubated at 37° C. for as long as one month. Is this a variable characteristic? My experience is that it is stable and but very little variable. I have made extended attempts to cause these non-coagulating bacilli to coagulate milk by artificial means but without success. The methods used included growing in milk containing calcium chloride, soluble phosphates, prolonged artificial incubation in milk, frequent sub-cultivations from one milk tube to another, &c., but none induced clotting. I do not think these experiments need be detailed further.

In a few cases I have found no coagulation in the first milk tube and subsequent clotting when at once reinoculated into fresh milk tubes, but these are not included in the above and were probably due to some peculiarity in the milk media tubes. For *practical* purposes, in my opinion, organisms which do not coagulate milk within 14 days should not be considered as true bacilli coli. On the other hand, I think it highly probable that these organisms, non-milk coagulators but typical in all other ways, are derived from typical bacilli coli but have lost their power of producing a sufficient quantity of acid to coagulate the milk, presumably from adverse environment. Taking this view, I would provisionally regard them as of less significance than quite typical bacilli coli, since the fæcal contamination may have been more remote, but if they can be shown to be prevalent in large numbers in excrement and absent, or relatively absent, in unbefouled materials, then, of course, they would have a significance of their own. The origin of these ten organisms does not negative this view, since one was derived from "made soil," one from horse manure, and one from tidal river mud containing at the same time perfectly typical bacillus coli communis, while the remaining seven were from water-supplies in all of which the quite typical organism was isolated from time to time, frequently at the same time. It is noteworthy that out of the large number of different sources of water-supply examined two should have been derived from the same source (one six months later than the other) and two from another source (but with a year's interval). Of course organisms only superficially resembling the bacillus coli but differing in several characters as well as non-coagulation of milk are not infrequently met with but these are not included in the above.

The fermentation of certain carbohydrates must be considered as the most important character of this organism.

Glucose fermentation.—All bacilli coli ferment glucose with production of acid and gas but since this property is shared by a large number of other organisms it is not a very distinctive characteristic.

Lactose fermentation.—This is, perhaps, the most important differentiating character. All true bacilli coli ferment lactose with production of acid and gas. Extended experience has convinced me of its fundamental importance and I would reject all organisms as not true bacillus coli communis if they did not ferment lactose with production of acid and gas. In this way a number of rather closely allied organisms can be excluded, which no doubt have a significance and importance of their own, but which cannot be classed as having the same significance as typical bacillus coli. In this connexion a number of organisms which I have isolated from time to time, and which all have the common property that they ferment lactose much less than the typical organism, are of interest. The characters of 12 such organisms fairly recently isolated and from a variety of sources are given in Table II.

All lactose fermentations were tested in Durham tubes in media consisting of 1 per cent. lactose and 1 per cent. peptone in water tinted blue with litmus solution. When the amount of gas produced is mentioned it is to be understood as being the height of the gas in the inner tube. The tubes were of approximately the same diameter but the measurement can only be considered as a very rough one.

Are these organisms to be considered as true bacillus coli? They generally differ in one or other points from the quite typical bacillus coli. Thus No. 1 when first isolated coagulated litmus milk only after ten days' incubation at 37° C. It was also very actively motile. When isolated it produced acid in lactose-peptone solution but only two or three bubbles of gas. After being kept in the laboratory a week or two it produced one-quarter of an inch of gas in the inner tube after three days' incubation. Kept from four to five months in the laboratory and again tested in lactose-peptone water it rapidly produced gas—i.e., two-thirds of an inch in two days. Also with fresh litmus milk the milk was coagulated after six days' incubation. No. 2 was typical in every way except the slight production of gas in the lactose tube. Re-examined after six months and after rejuvenation

[2] Journal of the Royal Army Medical Corps, vol. i., No. 5, p. 366.

[3] For further particulars see article by the writer on this subject in the Journal of Pathology and Bacteriology, November, 1904.

TABLE II.—SHOWING THE CHARACTERS OF THE ORGANISMS WHEN ISOLATED.

No. of organism.	Source.	Gelatin surface colonies.	Gelatin slope.	Liquefaction of gelatin (2 weeks).	Litmus milk.			Indol production.	Neutral red reaction.	Glucose fermentation.	Motility.	Lactose fermentation.			Starch fermentation.	Saccharose fermentation.	Dulcitol fermentation.	Raffinose fermentation.
					Acid.	Coagulation.	Time to coagulate.					If acid.	If gas.	Amount of gas (1 week).				
1	River mud after being kept in laboratory three weeks.	Quite typical.	Bluish translucent growth.	–	+	+	10 days.	+	+	+	+ Very active.	+	2-3 bubbles only (1 week).		–	+	–	Very little.
2	River mud.	,,	,,	–	+	+	2 days.	+	+	+	+ Active.	+	+	¼ inch.	–	–	–	
3	River water.	Not quite typical.	,,	–	+	+	4 days.	+	–	+	–	+	+	Very slow; ½ inch.	–	+	–	
4	Cockles.	Quite typical.	,,	–	+	+	10 days.	+	–	+	–	+	+	Slow; ¼ inch.	–			
5	Healthy stool.	Not examined.	,,	–	+	+	2 days.	+	–	+	–	+	+	¼ inch.	–	+	–	+
6	River mud after being kept one month in laboratory.	Atypical.	,,	–	+	+	6 days.	+	+	+	+ Very active.	+	–	–	–	+ +	–	+
7	River mud one week after being collected.	Quite typical.	,,	–	+	+	2 days.	–	+	+	+ Active.	+	1 bubble.		–	+ Little.	+	–
8	Stool, child, case of epidemic diarrhœa.	,,	,,	–	+	+	4 days.	+	+	+	–	+	+	¼ inch.	–	–	+	–
9	Fly.	Typical.	,,	–	+	+	12 days.	+	+	+	+ Active.	+	1 bubble.		–	+	+	Acid only.
10	River mud, same as No. 7 but when collected.	Quite typical.	,,	–	+	–	2 weeks.	+	–	–	–	+	+	Slow; ¼ inch.	–	+		
11	Fly.	More circumscribed and smaller than typical.	,,	–	+	+	7 days.	+	Partial.	+	+ Very active.	+	2 bubbles.		–	–	–	–
12	Tidal mud kept in tank in laboratory.	Typical.	,,	–	+	+	2 days.	Traces.	+	+	+ Slight.	+	1 bubble only.		–	+	+	+

by growing first in broth, then on gelatin plate, then in litmus milk, it gave the same results. Here the slow and little lactose fermentation was constant. In the same way No. 3 when isolated gave no neutral red reaction and the gelatin surface colonies were not perfectly typical. After some months in the laboratory, the gelatin colonies were quite typical but no neutral red reaction as before. The repetition of the lactose fermentation was also very similar in both, yielding after four days' incubation only acid and one bubble of gas, but after six days as much as one inch of gas in the inner tube. For No. 4 apart from slow and slight production of gas in lactose-peptone water, milk was coagulated only on the tenth day (repeated with same result on several occasions) and no neutral red reaction was obtained. It then died out, so that fresh examinations could not be made. No. 5 was very similar except that it clotted milk rapidly. Unlike most bacilli coli it only fermented mannite slowly and not well. It died out so could not be re-examined. No. 6 is included here because at first sight it belongs to this group. It is, I believe, however, quite a different organism and mainly characterised by its fermenting saccharose and mannite with extreme production of gas. Maltose and galactose, as well as glucose, are all rapidly fermented. Repeated growth in fresh lactose-peptone tubes gave always acid, but never more than one bubble of gas. The gelatin surface colonies, examined on several occasions and after long intervals of time, never became typical, being always smaller and less inclined to spread than the common type of bacillus coli. This organism is certainly not a bacillus coli. No. 7 when isolated produced no indol and only gave one bubble of gas in the lactose tube. Re-examined one month later and after being kept on artificial media for that time it gave the same results with the lactose tube and still gave no indol. I hope to re-examine again after some months' growth in the laboratory. No. 8 when isolated fermented lactose with but little production of gas. Re-examined two months after isolation it fermented lactose still slowly but with production of more gas (from one-third to one-half of an inch). No. 9 was re-examined two months after isolation, when one-fifth of an inch of gas was produced in the inner tube of the lactose medium after three days' incubation. When isolated, milk was coagulated in 12 days but two months later in from five to six days. With No. 10, when isolated, milk was not coagulated in two weeks but on inoculation from this into fresh litmus milk tubes gave complete clotting in three days, so this may have been due to some abnormal condition of the first milk tube. Fresh lactose inoculations after six weeks in the laboratory gave now typical and rapid gas production. When isolated no gas was formed in neutral red glucose agar shake preparation and no neutral red reaction. This was repeated with exactly similar results on several occasions soon after isolation. After six weeks in the laboratory there was fairly abundant gas production in freshly made shake preparations but still no neutral red reaction. The latter was also absent in neutral red broth cultures. After two months on a gelatin slope in the laboratory a complete neutral red reaction was easily obtained with No. 11, but the lactose fermentation was still but slightly marked as regards the production of gas (one-quarter of an inch in five days). No. 12 has not as yet been re-examined, except that the lactose fermentation results have been repeated several times with identical results and as recorded.

These organisms have been described in considerable detail because they, in part at least, illustrate, I believe, the effects of unfavourable environment. Excluding No. 6, I believe that the others are true bacilli coli altered by environment. No less than five were from mud from tidal waters kept for considerable periods in the laboratory. Under laboratory conditions, with abundant nutriment, in most cases some return to the normal was witnessed and with further investigation would probably be still more pronounced. Their practical significance is, however, debateable, since it may be argued that even if they are altered bacilli coli they do not point to recent pollution. They are not infrequently met with but provisionally I do not rely on, or consider, them as indicators of *recent* pollution.

Saccharose fermentation.—All workers are in accord that this cannot be considered an essential character of bacillus coli. Escherich's bacillus coli communis does not ferment saccharose. Some typical bacilli coli, as usually defined, ferment cane sugar; others, probably the majority, do not. Some further particulars in regard to this and the fermentation of other sugar-like bodies are considered below.

Starch fermentation.—The true bacillus coli does not ferment starch. Organisms are occasionally met with which resemble the bacillus coli closely but which ferment starch with the production of acid and gas. Apart from their gelatin surface colonies which are usually more compact, they may be suspected by the fact that their gelatin surface growth is thicker and whiter than the typical appearance. They are non-motile. I have isolated such organisms from as little as $_{1}{}_{0}{}_{0}{}_{0}$th of a cubic centimetre of sewage, but in my experience they are not abundant in sewage or excreta. I have not tested their growth on potato but, as a practical measure, if an organism gives a whiter and thicker growth on a gelatin slope than the typical appearance, it is advisable to test if it ferments starch (e.g., 1 per cent. starch peptone litmus water). Lactose and glucose are fermented, milk is acidified and coagulated, and indol is produced. Of two such organisms recently isolated one fermented saccharose, the other did not.

In regard to the fermentation of maltose, galactose, lævulose, mannitol, glycerine, &c., I have not found that specially testing for such fermentation has up to the present yielded results worth the trouble or of value in the differentiation of this organism.

Potato.—In my opinion to grow this organism on potato serves no useful purposes, apart from the possible differentiation of a bacillus lactis aerogenes organism, and can be omitted without loss. In the same way the reduction of nitrates to nitrites is caused by bacillus coli, but this property is one common to so many other bacteria that it is valueless as a routine test.

Neutral red reaction.—This is a very useful test but the reaction is one given by a number of other organisms. I have found the reaction to be slightly, but only slightly, variable and from time to time have isolated organisms quite typical in all other ways which when isolated gave no neutral red reaction (in glucose neutral-red agar shake preparations) but which after a short period of artificial subcultivation in the laboratory gave the reaction. If no neutral red reaction is obtained usually the organism isolated also deviates in one or other property from the typical bacillus coli.

Pathogenicity.—Most bacteriologists, at least in this country, have not found that the pathogenicity of isolated bacillus coli is of any help in determining the potency for evil of the material (soil, water, &c.) under investigation. As a routine test it is not to be commended.

In regard to the different methods for isolating and indicating the presence of bacillus coli such as MacConkey's medium, neutral red, &c., none of them can be relied upon to indicate by themselves with certainty the presence of bacillus coli. They are invaluable as an aid to isolation but in every case the bacterium must be separated in pure culture and its characters worked out. This is apparently accepted by all workers at this subject. While it is of advantage to employ as large a number of tests as possible, yet for routine work, when the labour involved is considerable, it becomes of great practical importance to have a minimum number of tests to use and yet tests which will give a sufficiently reliable means of indicating if any organism is a true bacillus coli or not. The work done on the characters of this organism is so large and on some points the unanimity is so considerable that it should not be difficult to fix a minimum number of tests to do and a minimum number of positive results to obtain.

The report of the committee appointed at the 1903 Congress of the Royal Institute of Public Health to consider the standardisation of methods for the bacterioscopic examination of water, issued in July, 1904,[3] deals with this question and lays down essential characters. These, I believe, would be accepted by most public health bacteriologists as essential, although personally I have found motility is very frequently not exhibited, on isolation, by bacillus coli quite typical in all other respects. Put another way, I believe it would be of great benefit to public health bacteriology if bacteriologists would agree as to the essential subcultivations to perform. The six tests of the committee, in my opinion, might be even reduced to five, omitting growth on agar slope, and the following would give all the essential tests—i.e., (*a*) growth on gelatin slope; (*b*) litmus milk at 37° C.; (*c*) lactose-peptone litmus solution (in a Durham tube); (*d*) peptone water; and (*e*) glucose neutral red agar shake preparation. Growth in glucose-peptone litmus solution in a Durham tube and another in neutral red broth can be substituted for this. From this the following results should be recorded. 1. Morphology and motility. These can be conveniently investigated from (*a*)—e.g., a hanging-drop preparation in broth after 20 hours' incubation. I do not think it essential to stain by Gram's method as a routine practice. 2. Translucent non-corrugated appearance on gelatin slope. 3. Non-liquefaction of the gelatin (two weeks). 4. Permanent—i.e., two weeks—acid production in litmus milk. 5. Milk clotting (within two weeks). 6. Lactose fermentation with the production of acid and gas. 7. Glucose fermentation (production of gas in glucose neutral red agar shake preparation). 8. Neutral red reaction; fluorescence and reduction to yellow. 9. Production of indol in (seven to ten days at 37° C.) peptone water. I believe that these tests are for all practical purposes quite sufficient reliably to indicate the bacilli coli which indicate excretal contamination. They require only five tubes of media and they are quickly performed.

I would suggest the use of the term *excretal* bacillus coli, and that an organism giving all these characters (whether motile or not) should be definitely implied when the term *excretal bacillus coli* is used. My experience is that the majority of organisms isolated in routine work as suspected bacillus coli from fluids such as neutral red broth or MacConkey's medium will give characteristic results with all these media. Bacillus-coli-like organisms, however, do not, as every worker at this subject is well aware, always yield all positive results with the above tests, and one or other of them may not be obtained. From the literature of the subject two rather opposite views seem to be held. On the one hand, the advocates of the one view draw the line strictly and say that an organism which does not give all the above, and perhaps other tests also, is *not* a bacillus coli indicating excretal contamination; on the other hand, others include bacteria lacking one or more of the above—e.g., milk clotting, indol production—and still include as bacillus coli indicating excretal contamination. The first view may, I believe, exclude organisms which are true indicators of excretal contamination but which have lost one or other of their original characters from unfavourable environment; the latter view is still less satisfactory since it may undoubtedly include organisms found in unpolluted sources and which do not indicate excretal pollution. The key to the question appears to turn upon the variability of these characters and from that point of view I have carried out a large number of experiments during the past three years. My personal opinion in the matter is that the following characters should be considered essential: a possible morphology, characteristic appearance on gelatin slope (variable within slight limits), non-liquefaction of gelatin, fermentation of glucose and of lactose, permanent acid production in litmus milk, and coagulation of milk within two weeks. I do not think it matters whether motility is exhibited or not. Indol reaction is a most important test but I do not regard it as so quite essential as the above and should only reject when no indol could be obtained after laboratory subcultivation for some time and then fresh tests made. The neutral red reaction is also of great importance but is not carried out by all workers, so that its precise value cannot be so readily determined.

I am far from implying that organisms which do not give all the above tests (e.g., organisms which fail to clot milk otherwise positive in their characters) are of necessity not indicators of fæcal contamination. They very possibly may be but the position in regard to them is not so sound as for those which I have ventured to call excretal bacilli coli—meaning by the term not that they are the only bacilli coli found in excreta, for they are not, but that they are trustworthy indicators of excretal contamination. For this group we do know that they are abundant in fæces and in sewage, and we do know that they are absent or relatively absent in sources such as water, mud, and soil not recently polluted. The obvious deduction is a strong one. For the less typical they probably have a significance of their own but it has not been so accurately gauged and so more care is required in drawing conclusions. I do not believe, however, that such organisms can be passed by as of no significance.

[3] See Journal of State Medicine August, 1904.

The main object of this paper has been to indicate the tests which, in my opinion, are the least which should be done but which yield all the evidence necessary to enable us to gauge whether or no the organism found is one not met with in pure sources but found abundantly in contaminated sources and to urge the need for uniformity.[4]

It must not be supposed, however, that all organisms marked off by the above tests are identical even if the differences of gelatin surface colonies, presence or absence of motility, be neglected. If such organisms be further examined to determine their power of fermenting different sugars and allied bodies it will be found that many further divisions can be made. Thus, some will ferment saccharose, others not, some dulcitol (dulcite), others not, &c.

I have been for some time now engaged in work having for its object the differentiation of bacilli coli from different sources, in particular from human and from animal sources, and for this purpose have made use of different sugars. The details which follow can only be considered as a preliminary note. Dealing only with bacilli coli which exhibit all the characters described above—morphology, characteristic gelatin-slope growth, no liquefaction of gelatin, fermentation of glucose and lactose, acid production, milk clotting, neutral red reaction, indol production,—these can be separated into quite a number of varieties and, as far as I have re-tested their characters, stable varieties.

The following classification of organisms isolated has no significance other than practical convenience and the dulcitol fermentation might equally well be used as a group differentiator before saccharose.

Group I.—Saccharose fermenters. Sub-group (*a*) dulcitol fermented and sub-group (*b*) dulcitol not fermented. A large number of both sub-groups were met with. They could be further differentiated by their action on other substances. Thus some fermented salicin; others did not break up this substance. Some split up glycerine with gas production, others had no obvious action. So far all the bacilli coli of this group which fermented saccharose have fermented raffinose also. I have not found the converse true, however, since all raffinose fermenters do not also ferment saccharose.

Group II.—Dulcitol fermenters but not saccharose. Sub-group (*a*) raffinose fermented; and sub-group (*b*) raffinose not fermented. A large number of organisms belonging to both sub-groups were isolated and could again be further differentiated by salicin and other substances.

Group III.—Maltose fermenters but not saccharose or dulcitol.

These have been rather less numerous than either Groups I. or II. in the results so far obtained. Most have fermented salicin but a few not. The majority have not fermented raffinose but a few have to a slight extent. In this way a very considerable differentiation into groups and sub-groups can be made out but at present I am not in a position to say whether there is any trustworthy differential distribution of these different sub-groups in excreta from different sources or any difference in their relative significance. That these differences exist indicates, however, the complexity of the subject.

Colchester.

A CASE OF TYPHOID FEVER PRESENTING SOME UNUSUAL FEATURES.

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ALTHOUGH the symptomatology of typhoid fever is notoriously subject to the greatest variations the following case seems to me to have an unusual share of atypical features and on that account may be of interest to the profession.

A woman, aged 30 years, was admitted into the Weston-super-Mare Hospital on March 6th, 1903, for severe pain in the left loin. On March 1st she had had a "shivering fit" followed by pain. Previously to this she had felt quite well. During the next few days she was feverish and the pain was more or less continuous. She had noticed nothing unusual in her urine. Dr. G. H. Temple, who had been called in and found her surroundings unsuitable, advised her removal to the hospital. She was admitted as a surgical case under the care of Dr. G. F. Rossiter. On admission the temperature was 101·4° F., the pulse was 104, and the respirations were 26. The patient was not in actual pain. The abdomen was moving fairly well and was not distended; it was supple in most parts except in the left hypochondrium, which was rigid and extremely tender, and there was slight rigidity of the recti; palpation in the left loin caused much pain and the skin over the region of the kidney was hyperæsthetic. The patient had been sick and was constipated; the tongue was clean but rather dry; a few sibilant rhonchi were heard over both upper lobes, more especially on the right side. The urine was acid and contained a small amount of pus; the patient afterwards told us that she had had cystitis two years ago. On the 8th, at 10 P.M., the temperature was 103·2°; tenderness in the loin was less; the bowels were relieved by calomel. The temperature gradually fell during the next few days and the pain and tenderness in the loin entirely disappeared; the recti, however, remained rigid. There was now some impaired resonance at the left base, with slight harshness of the expiratory sound; rhonchi were still heard over the right upper lobe. The pulse was soft but not dicrotic and during this period of pyrexia never exceeded 100 after the 10th. The temperature oscillated irregularly from the 11th to the 15th and was normal on the evening of the latter day; the tongue was moister and the patient now felt fairly well. The only treatment adopted beyond purgatives was the application of turpentine fomentations to the abdomen. The case was regarded by Dr. Rossiter and also by Dr. R. Roxburgh, who was thenceforth in charge of it as a medical case, as one of perinephritic inflammation which had subsided. The question of renal tuberculosis was considered, but the specimen of urine submitted to the Clinical Research Association was free from tubercle bacilli.

The patient now seemed to be on the road to recovery; the temperature kept subnormal for four days; the diet was increased gradually, but on the evening of the fifth day of apyrexia (the 20th) the temperature suddenly rose to 102·8°, a rub was heard at the right base, and an occasional crepitation in the lungs. The temperature became distinctly oscillating but seldom reached normal even in the mornings, and in the evenings was generally 102° or 103°; the pulse kept about 100 and the respirations 24. A hæmorrhagic vaginal discharge, which was at first taken to be a menstrual period, began on March 21st, the period being a month overdue. From the 28th to the 31st the fever was much less and the patient seemed better; during this time there was no pain or abdominal tenderness but the recti were always rigid. Sibilant rhonchi persisted at the right apex but otherwise there were no definite physical signs pointing to pulmonary disease. The urine still contained a little pus. By the evening of the 31st the temperature was 101·2°; it kept at this level next day, the pulse being 96; the tongue was dry and slightly furred. The patient was looking ill and rather lethargic. On April 2nd a report of Widal's reaction given by the patient's blood was received from the Clinical Research Association. The blood gave a good reaction with dilutions 1 in 10 and 1 in 25, and a slight reaction with dilution 1 in 50. There being no history of a previous attack of typhoid fever this was regarded as conclusive. That night her temperature reached 104·8°; it fell quickly but at 4 A.M. she had a rigor and the temperature being 104° she was sponged with water at 80°. For the next four days the pyrexia continued without marked diurnal variations and she was twice sponged on the temperature reaching 103°. The pulse remained steady, about 96 to 100. She took milk well and enemata were given daily to relieve the bowels, the motions now being typically "pea-soupy." The liver dulness reached an inch below the costal margin; the spleen could not be felt but the splenic dulness extended nearly to the nipple line; the recti muscles remained rigid. The vaginal discharge, which had continued since March 21st, now became very foul, and boric douches were given night and morning. On April 7th the temperature ranged a good deal lower, the maximum being 100·2°. On the 8th while micturating she passed, without pain, a small pear-shaped body per vaginam; this was very foul and consisted of a membranous bag containing fibrous tissue and blood clot and was considered to be

[4] Since writing this paper in the early autumn a most valuable contribution to the subject by Dr. A. C. Houston has been published in the report of the medical officer to the Local Government Board, 1902-03. This should be consulted for a more complete description of the characters of bacillus coli from normal stools.

a carneous mole. The os uteri was patulous, admitting the tip of the index finger (the patient was a nullipara), but the abdominal rigidity prevented the uterus being examined bimanually. The vaginal discharge was much increased for some hours after this and soon became sweeter; ergot was administered. The temperature fell to normal, and remained so, on the morning of the 10th, and the discharge ceased on the 11th. As constipation was still very troublesome half-grain doses of calomel were given thrice daily. A few typical spots were now seen for the first time, mostly on the back. For the next three days the temperature remained subnormal and the pulse improved in quality and at times was very slow (60). On the 15th, however, the temperature went steadily up to 102° and remained at, or above, this level till the evening of the 18th, during which time she was sponged six times. The pulse now became rapid (120 or more) and very feeble, the heart sounds were short and weak, and the patient seemed desperately ill. Brandy was increased to half an ounce every two hours and a mixture containing seven minims of tincture of digitalis and three minims of liquor strychninæ was given every four hours, together with half a drachm of aromatic spirit of ammonia. The rhonchi persisted in the right lung and the liver enlargement was unaltered. The bowels, under the influence of small doses of calomel, were now acting of themselves. On April 19th the temperature became normal, the pulse-rate fell to 88 and its quality improved, the heart sounds also becoming more distinct. The digitalis had to be omitted owing to vomiting which it caused. From the 22nd to the 24th there was another slight recrudescence of fever but it caused no trouble and from that time the temperature remained subnormal. About this period the gums became sore and spongy; this was attributed to the calomel, which was stopped, and the condition was treated with mouth washes of potassium chlorate and alum, and soon passed off. Convalescence was uneventful; solid food was allowed on the tenth day of apyrexia and the patient regained her strength wonderfully soon and was discharged to the West of England Sanatorium on May 25th.

The course of the temperature was as follows. On admission on March 6th it was 101·4°. On the 8th in the morning it was 100·4° and in the evening 103°. After this date until the 15th the temperature fell on the whole, although it oscillated, and by the evening of the 15th it was 98·6°. It remained subnormal until the evening of the 20th when it shot up to 102·8°. On the evening of the 21st the vaginal discharge began. Between this date and April 2nd the temperature oscillated but always kept above normal, the evening temperature being between 101° and 103°. On the 27th it reached 103·2°, after which more oscillations occurred until the evening of April 2nd, when the reading was 104·8°. On the 8th the carneous mole came away and on the morning of the 10th the reading was 97°. The vaginal discharge ceased on the following day and the temperature remained subnormal until the evening of the 15th, when it rose to 102·6°. Thence it rapidly fell, except for an evening rise on the 17th to 103·2°, until on the evening of the 19th the reading was 97°. From the 22nd to the 24th there was a slight recrudescence of fever, but from the last-named date the temperature was either normal or subnormal until the patient was discharged.

The chief points of interest in the case seem to be as follows:—

1. *The difficulty in diagnosis.*—The onset with a rigor and acute localised abdominal pain seemed to point to some nephritic or perinephritic suppuration and the presence of pus in the urine was at first regarded as confirmatory of this till the history of cystitis was obtained. The rapid amelioration of the pain and tenderness at the end of a week, however, was a contra-indication, while the temperature, the pyuria, and the pulmonary signs suggested the possibility of tuberculous mischief somewhere, but the character of the pyrexia was hardly that of tubercle and the signs in the lungs were not conclusive. The persistence of sibilant rhonchi over the right upper lobe throughout the whole illness is interesting and their presence led us to think of typhoid fever fairly early in the case, though it was much too slender a basis for a diagnosis. The absence of any cardiac murmurs, of sweats, and of hæmaturia was against infective endocarditis with embolism in the kidney. The value of Widal's reaction in these cases is clearly proved, confirmed as it was later by the spots, the enlarged spleen, and the character of the stools. The absence throughout of cerebral symptoms, even such as headache, of dicrotism in the pulse, of any marked tympanites and, for a time, of spots, which were constantly watched for but which only appeared late in the case and were limited to about half a dozen on the back, all these negative features are worthy of notice.

2. *The course of the disease.*—Assuming that the onset was really on March 1st, and the patient said she felt quite well up to then, the original fever was short, for the temperature was normal on the evening of the fifteenth day and remained so for some time. There were then three relapses, separated by short apyrexial intervals, and a fourth slight recrudescence of fever later; each relapse, however, was of short duration. In the second relapse the spots appeared for the first time. During the second and third relapses the patient was much more seriously ill than she was during the initial fever and in the latter most grave symptoms of cardiac failure occurred.

3. *The occurrence of abortion.*—We had no idea that the patient was pregnant until after the discharge of the carneous mole. A previous vaginal examination had not detected the slight enlargement of the uterus which must have been present, bimanual examination being hindered by the rigid recti. According to Osler, 65 per cent. of pregnant women abort during an attack of enteric fever. No doubt the foul condition of the uterine contents was a factor in the pyrexia of the second relapse.

4. *Other points of interest* are—1. The inability to continue the administration of digitalis by the mouth, owing to gastric irritation so produced. Fortunately, the cardiac condition improved at this time; had it not done so we were prepared to give the drug per rectum. 2. The occurrence of stomatitis after the administration of mercury in small doses for about three weeks. 3. The enlargement of the liver, which was present when the patient left the hospital. 4. The absence of any sequelæ. The case is a good example of the protean variability with which enteric fever may present itself and a reminder that in all imperfectly explained pyrexias the idea of typhoid fever should be ever present in the practitioner's mind.

I am indebted to Dr. Roxburgh, honorary physician to the hospital, for permission to publish this case.

Banwell, Somerset.

HYDATID CYST SIMULATING SUBPHRENIC ABSCESS.

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THE following case presents certain points of interest from the position of the cyst which was that of the most usual variety of subphrenic abscess, and also from the gastric symptoms which were no doubt produced by the displacement of the stomach.

A woman, aged 27 years, had suffered for two years from weakness and malaise, with frequent pains in the region of the left hypochondrium. These pains, attributed to indigestion, were often accompanied by vomiting and also by attacks of faintness. The pains appeared to have relation to the taking of food and at times were so severe and long-continued that she remained in bed for days at a time. There was no history of the passage of blood by the mouth or the bowel. About nine months before I saw her a tumour had been discovered in the abdomen and was said to be an enlarged spleen.

When I was called to see her in consultation with her medical attendant she was thin but not emaciated. The tongue was slightly furred and the bowels were very constipated. There was some bulging of the lower part of the chest in front on the left side and above this the cardiac impulse could be seen in the third intercostal space. A swelling with a rounded limit below could be felt extending from beneath the costal margin on the left side for a distance of three fingers' breadth; it was smooth, tense, and felt semi-solid. It extended from a point about one and a half inches to the right of the middle line to the left mid-axillary region, ascending beneath the costal margin at each extremity. The lower limits distinctly descended with a deep inspiration. It was dull all over except for a small portion beneath the ensiform cartilage, where it was moderately resonant, and the dulness was continued into the

chest obliquely to join the cardiac dulness in front, so that almost the whole of the chest in front below the second rib cartilage was dull. The upper part of this was obviously due to the displacement upwards of the heart. Behind there was dulness on the left side of the chest as high as the angle of the scapula, bounded above by a curved line with its convexity upwards, descending towards the spine and towards the axillary region. It was noted that the upper limit of this dulness descended slightly with a deep inspiration. Over the dull area the vocal fremitus and resonance and breath sounds were absent. There were no other abnormal physical signs discovered in the chest or the abdomen. The liver appeared to be of normal size and there was no albuminuria. The spleen could not be made out. The blood examination showed slight anæmia but no leucocytosis. The temperature was normal.

It was obvious that we had to deal with a tumour below the left wing of the diaphragm which, unlike an enlarged spleen, exerted its chief pressure upwards. A subphrenic abscess seemed unlikely owing to the long duration, the absence of fever, and of any symptoms pointing to a previous perforation of the stomach, which is far the most common cause of subphrenic abscess on the left side. The possibility of the tumour being a pancreatic cyst was discussed, but these tumours do not, as a rule, move with respiration and they are situated more in the median line; the fæces also were normal in colour and consistency. A portion of the tumour was resonant, which is often the case in a pancreatic cyst owing to the stomach lying above it, but this was found at the operation to be due to the thin edge of the left lobe of the liver overlying the displaced stomach. Eventually by exclusion we arrived at a hydatid cyst as the most probable diagnosis.

Mr. Bilton Pollard arranged to perform abdominal section and discovered a hydatid cyst situated in the posterior part of the left lobe of the liver, pushing the anterior part of that lobe forwards. He evacuated five pints of a brownish fluid which microscopically contained red blood corpuscles, granular cells, crystals of cholesterin and débris. No hooklets were seen but a portion of the cyst wall showed the structure characteristic of hydatid. The cyst wall was stitched to the wall of the abdomen and drained. The patient's further progress was uneventful; she was out of bed in a month after the operation, though the fistula continued to discharge for some weeks longer. She finally recovered perfect health and all signs of the tumour have now disappeared.

At the operation it was seen that the stomach was displaced downwards and towards the mid-line and lay beneath the displaced left lobe of the liver, thus producing resonance over the right limit of the tumour.

It would appear that in this patient the ovum having perforated the stomach wall and the capsule of the liver developed in the nearest part of the liver which it reached and was not carried away in the portal circulation as usually is the case when it develops in the right lobe of the liver. Such a condition appears to happen in more than a solitary instance, for shortly after seeing the above case I saw at the necropsy of a patient who died from heart disease in the London Temperance Hospital a hydatid cyst of about the size of an orange in almost exactly the same situation, being adherent on the one hand to the posterior wall of the stomach near its cardiac end and also to the posterior part of the left lobe of the liver. This cyst was evidently in active growth and contained the usual hydatid contents, including hooklets, and if the patient had lived till it had grown to a larger size it would doubtless have produced similar symptoms and signs to those which I have mentioned.

Wimpole-street, W.

THE PROGNOSTIC VALUE OF THE DIAZO-REACTION IN ENTERIC FEVER.

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THE prognostic value of the diazo-reaction in enteric fever was originally described by Ehrlich in 1882[1] and has subsequently been confirmed by several German, French, and American observers,[2] but hitherto has received little recognition in this country. The greater certainty attaching to Widal's test from a diagnostic standpoint has tended to throw Ehrlich's reaction into the shade, the use of the latter in prognosis being disregarded. The present paper, which is based on observations made on 65 cases of enteric fever in which the diazo-reaction was employed, offers confirmatory evidence of its prognostic value. A positive reaction in enteric fever is first obtained about the fourth day of the disease and tends to disappear by the end of the second or in the course of the third week. Its persistence beyond that period only occurs in severe cases and in spite of a fall of the temperature indicates that the infectious process is still active and that a recrudescence or relapse is imminent.

The following shows the diazo-reaction in 65 cases of enteric fever admitted at various stages of the disease. Cases admitted in the first week: 9 positive, none negative; second week, 24 positive, 9 negative; third week, 9 positive, 8 negative; fourth week, 2 positive, 2 negative; and fifth week, 1 positive, 1 negative. In 27 of these cases in which the test was employed throughout the disease the diazo-reaction became finally negative at the following dates: first week, 0; second week, 6; third week, 12; fourth week, 3; fifth week, 4; sixth week, 1; and seventh week, 1.

My own experience coincides with that of Oppenheim and Loeper who hold in opposition to Rivier[3] that an intense reaction is by no means the appanage of severe forms of the disease as it is found in the immense majority of cases in which the urine is examined during the first fortnight. It is only the persistence of a positive reaction that characterises a severe attack. Daily examination of the urine shows that the commencement of lysis occurs either simultaneously with the disappearance of a positive reaction or succeeds it by an interval of varying duration.[4] Thus out of 27 cases in 22 these two events occurred in the same week, in four cases lysis began in the week following, and in one instance there was an interval of 12 days between the two. Before the reaction disappears entirely there is usually a gradual diminution in its intensity, the successive grades being designated by Ehrlich R++, R+, R−, R− −, which correspond with shades of colour varying from a deep purple or carmine to a pale yellow. Not infrequently before the reaction becomes finally negative it may be occasionally positive. Generally speaking, so exceptional is it for the disappearance of the reaction not to be followed at a short interval by a decided fall in the temperature that a persistent pyrexia with a negative reaction indicates a secondary infection or impermeability of the kidney to the colouring matter, the latter, according to Ehrlich, constituting a grave sign. Thus, in seven of my cases in which aggravation of the general condition occurred after disappearance of the reaction three died from toxæmia, two from hæmorrhage, one from perforative peritonitis, and one from lobar pneumonia. Knowledge of the duration of the diazo-reaction is useful as a means of checking the history, which is often notoriously misleading, and in conjunction with the other symptoms helps one to arrive at a more accurate estimate of the length of the illness. As a rule there is a tendency to under-estimate the duration of the illness. A decidedly negative reaction (R− −) in an undoubted case of enteric fever indicates that the patient has in all probability been ill for at least 14 days. A positive reaction, on the other hand, in the absence of a relapse or recrudescence shows that the illness has lasted little more than a fortnight at the most.

The reappearance of the reaction after a period in which it has been negative indicates the imminence of a recrudescence of the disease if the temperature is not already settled or of a relapse if apyrexia has been established. On the other hand, a persistently negative reaction with a rise of temperature excludes the possibility of recrudescence or relapse. In certain cases of complications due to the specific bacillus the reaction hitherto negative may become positive again. Thus Lainois and Loeper record its presence in a case of typhoidal orchitis occurring in convalescence. It is, therefore, advisable to employ the test at frequent

[1] Ehrlich: Zeitschrift für Klinische Medicin, 1882, Band v., S. 265.

[2] Escherich: Deutsche Medicinische Wochenschrift, No. 7, 1883. Krokiewicz: Wiener Klinische Wochenschrift, No. 29, 1898. Michaelis: Deutsche Medicinische Wochenschrift, 1899. Chantemesse: Traité de Médecine par Charcot, Bouchard, and Brissaud, art. Fièvre typhoïde, 1899. Brannan: Twentieth Century Practice of Medicine, 1899. Oppenheim et Loeper: Gazette des Hôpitaux, May 25th, 1901.

[3] Thèse de Paris, 1898.

[4] Chantemesse (loc. cit.) says that the disappearance of the reaction may follow the fall of the temperature.

intervals for at least one month after the evening temperature has reached normal and not only to use the test throughout the febrile period. It is interesting to note that in diseases in which the reaction is rarely found—e.g., in tuberculosis, pneumonia, and diphtheria—a positive result is of still graver omen than in enteric fever (Ehrlich). In measles in which the reaction is as constant as in typhoid fever no prognostic value attaches to its presence or persistence.

Summary.—(1) In all but severe attacks the diazo-reaction tends to disappear in the course of the second or third week, this disappearance shortly preceding, or coinciding with, the commencement of lysis; (2) its reappearance during or after the completion of lysis is a warning of recrudescence or relapse, or of complications directly due to the specific bacillus; (3) a sudden disappearance of the reaction associated with a deterioration of the general condition is of bad omen; and (4) the character of the reaction is a useful check to the history.

Tooting.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

NON-TRAUMATIC CEREBRAL HÆMORRHAGE IN A CHILD, AGED TEN YEARS.

BY HUGH TAYLOR, M.A. CANTAB., M.A., M.D. DUB.

THE following brief note of an extensive cerebral hæmorrhage without any traumatic origin occurring at such an early age is, I have ventured to think, worth recording.

About 10 o'clock on the evening of Dec. 31st, 1904, a little girl, aged ten years, who had "never been really ill in her life" and who had been playing about all day with her companions apparently quite in her usual health, suddenly put her hand to her head exclaiming "Oh, my head!" gave a cry, fell down, and was in a minute or so very sick. The parents were at first inclined to ascribe the attack to a Christmas surfeit but on raising her into a chair they discovered that "she had lost the use of her limbs." I saw her about an hour afterwards. She had been very sick and was still inclined to retch. She was reclining in an arm-chair in a semi-comatose condition, her pupils were dilated and fixed, her temperature was 97·8° F., and her pulse was uncountable. The mouth was drawn over to the right side of the face, the head was inclined to the right shoulder, and her left leg was quite paralysed, but the left arm, so far as I could make out in a somewhat hasty examination in unfavourable circumstances—an ill-lighted crowded hut—was not so much implicated. About 4 A.M. on Jan. 1st she tried to "turn over" in bed, made an abortive attempt at vomiting, and quietly died. The father is a strongly built "ganger"; the mother is a weakly anæmic rheumatic woman, has a large family, and one sister suffers from constantly recurring tonsillitis.

A necropsy made on Jan. 4th disclosed a hæmorrhage which, starting from some vessel in the corpus striatum or optic thalamus, had literally ploughed its way into the right lateral ventricle, the resulting clot completely filling the cavity.

Though the diagnosis was confirmed I am quite at a loss to account for the condition revealed. My colleague, who kindly assisted me at the necropsy, and myself do not profess to be expert pathologists but we could find absolutely nothing to account for the attack, all the other organs being, macroscopically at any rate, quite healthy.

London.

A CASE OF EXTRACTION OF A COIN FROM THE ŒSOPHAGUS.

BY JAMES LINTON BOGLE, M.D. EDIN.

IN connexion with the case of extraction of coins from the gullet published in THE LANCET of Dec. 10th, 1904, p. 1641, the following one may be of interest as occurring about the same time in my own household.

The patient was a boy, aged five years, who on Dec. 9th whilst playing with a 10-centesimi piece (being 1·2 inches in diameter and much the same size as a penny) put it into his mouth and accidentally swallowed it. He complained of pain at the back of his throat and in the stomach and was repeatedly sick, vomiting the food last taken. There was no interference with breathing and he readily swallowed liquids. Nothing could be seen or felt on careful examination of the throat and gullet save some slight reddening of the fauces. He was held up by the feet and well shaken without result. The vomiting continued for 24 hours, when the gastric pain became less. He had regular action of the bowels and took liquids and semi-solid food without difficulty. On the 14th—i.e., five days afterwards—the coin had not been voided per rectum, there was still some irritation in the throat, the boy's voice was somewhat weak, and he still could not take solid food. He was therefore on that day taken to San Remo, where, through the kindness of one of my medical *confrères*, an excellent skiagram was taken by the x rays, showing very clearly the coin impacted in the gullet just above the sternal notch, being two-thirds above and one-third below the sternum. Under chloroform attempts were then made to remove it, either by bringing it up or pushing it downwards but unsuccessfully, mainly owing to the want of suitable instruments. As the x ray apparatus still showed clearly the shadow of the coin in the same position I telegraphed to Dr. J. A. Macdougall of Cannes, who kindly came next day to our assistance. Chloroform having again been administered a long flexible coin catcher was passed and at the first attempt this brought up the coin to the rima glottidis. There it was nearly lost again, falling forwards, but it was successfully removed by forceps. The coin had already much changed in appearance, being dark green and somewhat roughened at the edges. The little patient was sick for 24 hours but was in his usual health in three or four days' time. The feature of the case was the smallness of the disturbance caused by the presence of this large coin in the gullet. The boy easily swallowed porridge, soft bread, and ordinary puddings with fluids and the breathing was quite unaffected from the first.

Bordighera, North Italy.

A Mirror

OF

HOSPITAL PRACTICE,

BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

SOUTH WIMBLEDON AND MERTON COTTAGE HOSPITAL.

A CASE OF RUPTURE OF THE PANCREAS; OPERATION; RECOVERY.

(Under the care of Dr. A. H. GERRARD, Dr. MARTIN RANDALL, and Dr. PATTISON ARMSTRONG.)

FOR the notes of the case we are indebted to Dr. Randall.

The patient was a man, aged 42 years, a carman. On May 13th, 1904, at 9 A.M., he was walking backwards, leading a pair of horses in a loaded van. He went too far and got jammed between his own van and a stationary laden wagon. The pole of his van hit him in the epigastrium. He had violent pain, became faint and collapsed, and vomited. There was no history of blood in the vomit. He was taken to hospital and seen at 10 A.M. by Dr. Gerrard who found him collapsed, ashen in colour, with a weak, small pulse of 90, a temperature of 95° F., and in great pain. He at once ordered stimulants, warmth, and a hypodermic injection of half a grain of morphine. It was ascertained that the patient had had breakfast at 8 A.M. and had passed urine at 8.30. Dr. Randall saw the patient with Dr. Gerrard at 11.30. He was still collapsed and in pain. Midway between the ensiform process and the umbilicus was a bruise nearly two inches in diameter and very tender to the touch. The skin was not broken. The abdomen moved but was very tender, especially above the navel. Liver dulness was normal. There was marked dulness in the right flank. From the gravity of the collapse, the site of injury, and the dulness it was concluded that the patient had some serious

visceral lesion with internal hæmorrhage, and it was decided to operate if his condition seemed to warrant it in two or three hours.

Operation was performed at 3 P.M. by Dr. Randall with the help of Dr. Gerrard. Dr. T. Brice Poole gave the ether. A catheter was passed and drew off normal urine. A median incision was made above the navel. There was no gas in the peritoneum but much effused clotted and fluid blood. No lesion of the stomach, the liver, or the bowel could be found. A large tear directed vertically was then seen running from the stomach to the liver in the gastro-hepatic omentum and there was a tear in the peritoneum over the pancreas. Under this was a tear two inches long in the body of the pancreas, running from the right and below, upwards and to the left, leaving a loose tongue-like process of the gland, the base of which was half the width of the organ. On passing the finger through the tear it came directly on to the aorta. Oozing was free but no large bleeding vessel could be found. The rent in the pancreas was sewn up by four silk stitches passed by means of a curved needle in a holder. The smaller peritoneal sac having been cleansed the greater part of the tear in the gastro-hepatic omentum was sewn up with a continuous catgut suture, leaving a space above for drainage. The abdomen having been thoroughly flushed with hot saline solution an iodoform gauze packing was inserted down to the pancreas and the rest of the abdominal wound was closed. The operation was fairly well borne.

For the first three days the patient was constantly sick and in much pain. Morphine was used. Champagne stopped the vomiting on the evening of the third day. After this he was able to take small quantities of peptonised milk and panopeptone by the mouth. On this day he began to get delusions, thinking the medical attendants were going to poison or to injure him. He jumped out of bed, got the matron on the floor, and did the same the next night to a male attendant. At this time he seemed likely to die. The pulse rose to 150 and he became so collapsed that on May 20th he had $\frac{1}{30}$th of a grain of strychnine injected four times in nine hours, besides hot brandy and saline rectal injections. Bromides, sulphonal, and hyoscine had no effect in quieting him. Meanwhile the wound was healing and discharging abundantly a viscid, slightly turbid fluid which caused excoriation of the margins of the wound, rendering soothing ointments necessary. The patient was now extremely emaciated and had much bronchitis, with severe cough and much muco-purulent expectoration. The stitches were all removed on the 23rd, the lower part of the incision being healed. On the 26th the patient was sent to Kingston Infirmary as he was so noisy as to make the rest of the small building at disposal intolerable for other patients. His highest temperature was 100·2° on the 18th and the 24th. His pulse varied from 100 to 150. During his stay at the South Wimbledon Hospital no sugar was found in his urine and no special features were noticed about the motions.

Notes on the patient's history at Kingston, by Dr. ARMSTRONG.—On admission there was an incision about two inches long in the epigastrium, to the edges of which a piece of omentum was adherent, leaving two small openings near the upper angle of the wound. From these openings there was a profuse discharge of a whitish viscid fluid. The condition of the skin of the abdomen and the lower part of the thorax resembled that produced by an extensive burn of the first and third degrees. The patient was nervous, depressed, and suspicious, was very emaciated, and had a troublesome cough. Mucous râles could be heard over both lungs but were most pronounced at the left apex. His temperature was 100° F. The abdomen was dressed with boric ointment. Chloralamide (30 grains) was given and the patient slept for several hours.

With regard to the subsequent history, the wound gradually contracted, so that at the end of June there was only a sinus admitting a probe. Under the application of silver nitrate this soon closed. Two sutures presented in the wound on June 3rd and were removed. The bronchial trouble was gone by about June 6th. Examination of the sputum for tubercle bacilli gave a negative result but pneumococci were present. The fluid from the wound was at first viscid, mucoid, and alkaline in reaction and sufficient in quantity to soak the dressings in a few hours. Its irritant character was shown by its effect on the skin. It oozed continuously from the wound whilst the patient lay still but spurted out when he coughed. Later it got more watery. In one and a half hours a fluid ounce of it was collected. It had a slight digestive action on albumin. Its action on carbohydrates was not tried owing to difficulty in collecting fluid without causing discomfort to the patient. The quantity diminished as the sinus contracted and the flow had ceased a few days before the sinus was quite closed. There was very obstinate constipation until the patient was able to take ordinary diet. There was nothing peculiar in the motions. On June 8th the urine contained a small quantity of sugar. No sugar was present a week later. There was complete absence of chlorides. As to his mental condition, depression and anxiety were marked during the first three weeks. Narcotics were used for the first five nights to induce sleep. With regard to feeding, during the first fortnight peptonised fluids only were given and were well retained. Then, as the patient's condition had improved and he craved for solid food, a small quantity of pounded fish was given and was retained for about five hours. Violent vomiting accompanied by epigastric pain then set in and continued during the night, necessitating hypodermic injection of morphine. Peptonised diet was resumed for a week, then ordinary milk, peptonised farinaceous foods, &c., were given in succession, and on July 4th the patient was on a full diet. The changes of diet were accompanied by discomfort at first but no further vomiting occurred. The patient gained in weight and strength rapidly and left the infirmary on July 28th, the wound having been quite healed for nearly a fortnight.

Remarks by Dr. RANDALL.—The patient has now (Jan. 15th, 1905) been at work since the beginning of October as a carman, having to move and to lift heavy weights. He has some trouble with digestion. The scar bulges a good deal. The case appears worthy of recording because we have found no record of an analogous case successfully treated by operation. Dr. W. Hale White[1] refers to a similar case where no operation was performed. The patient died after a week with extensive fat necrosis. Another fatal case is referred to by Dr. R. Salusbury Trevor,[2] in which the patient died with fat necrosis and other lesions following injury to the pancreas by a kick from a horse. In the same article a successful case of operation for stab wound of the pancreas is mentioned. Injuries in this region are usually complicated, but the above two cases show that a severe uncomplicated trauma of the gland is not unlikely to be fatal. Hence there is some reason to think that the line of treatment adopted in this case was correct. For some days recovery was not expected. The vomiting and difficulty with the bowels were in all likelihood connected with some bruising of the sympathetic nerve plexuses behind the pancreas and it was not until several weeks after the accident that he was able to take anything except peptonised foods. The delusions were not, in our opinion, connected directly with the fact that the pancreas was injured but were the result of the severe shock on one with a history of mental trouble in the family. The violent outbreaks resulting would certainly have destroyed his life, apart from the prompt treatment of the ensuing collapse by strychnine and other stimulants. It seems difficult to imagine that recovery could have occurred in this case apart from operation when we consider the nature of the lesion and the amount of blood effused. If decomposition had not occurred fat necrosis would have been practically sure to follow and there was nothing to limit the action of the fluid to even the lesser peritoneal sac. From the physiological point of view there is not much to be said. Dr. Armstrong found sugar in the urine once, but it was tested on various occasions besides by all of us with a negative result. The motions showed no special features. That the discharge from the wound was largely pancreatic juice is evident from the condition of the skin and the tests used by Dr. Armstrong.

KIDDERMINSTER INFIRMARY AND CHILDREN'S HOSPITAL.

A CASE OF ANTHRAX (MALIGNANT PUSTULE) TREATED WITH PROFESSOR SCLAVO'S SERUM.

(Under the care of Mr. J. LIONEL STRETTON.)

A MARRIED woman, aged 35 years, was sent to the Kidderminster Infirmary and Children's Hospital by Mr. H. L. Miles on Dec. 23rd, 1904. On admission there was a well-marked

[1] Encyclopædia Medica, vol. ix., p. 89.
[2] Practitioner, April, 1904.

malignant pustule situated on the chin just below the right angle of the mouth. Serum from the vesicles showed anthrax-like bacilli. The history was that she had a small inflamed pimple in the same situation and she distinctly remembered rubbing the head off it on the 18th; it commenced to swell on the 20th and was well developed by the 22nd. Her husband was a wool-sorter and had been working on Persian wool. He had a moustache and it was his custom each time he came home to kiss his wife. This made the source of infection tolerably clear. The pustule was freely excised and the wound was left to granulate. 30 cubic centimetres of Professor Sclavo's serum, divided into four portions, were injected into the subcutaneous tissue covering the abdomen at four different points. The after progress was satisfactory. Locally there was more suppuration than is usual. There was no considerable rise of temperature, the highest record being 99·2° F. on the second and third days. On the fifth day she was able to be up and was discharged on the eighth day with a healthy granulating wound.

The excised pustule was forwarded to Dr. C. Duncan, analyst to the Worcester county council, and he reported as follows: "The centre of the pustule was removed and teased up in distilled water. A few anthrax-like bacilli were detected when the material was stained by the methods of Löffler and Gram. Three agar cultures of the material at blood heat developed a few typical anthrax colonies and many other colonies of cocci and bacilli. The material therefore contained living anthrax bacilli."

Remarks by Mr. STRETTON.—Although the successful issue cannot entirely be attributed to the use of the serum this case deserves to be put on record as one of the earliest treated with it in this country. From the history of the case it is probable that more than three days elapsed before the pustule was excised and from a considerable experience I have learnt that the chances of recovery are very slight if excision is delayed beyond 48 hours. Even within that time death has occurred in many cases so treated. I am not prepared at present to sanction the use of the serum without excision of the pustule as practised by Professor Sclavo. His results are so striking that it is probable future experience will prove this to be justifiable.

For the supply of serum I am indebted to Dr. T. M. Legge, His Majesty's Medical Inspector of Factories, who has spared no pains in bringing this method of treatment before us.

Medical Societies.

CLINICAL SOCIETY OF LONDON.

Exhibition of Cases.

A MEETING of this society was held on Jan. 27th, Dr. FREDERICK TAYLOR, the President, being in the chair.

Mr. J. P. LOCKHART MUMMERY showed an Instrument for Examining the Rectum and the Sigmoid Flexure. The instrument was a slightly modified Strauss's sigmoidoscope by which a diagnosis might be made, thus avoiding exploratory laparotomy.

Mr. J. HUTCHINSON, jun., showed a case of Extensive Syphilitic Necrosis of the Skull causing an Intracranial Abscess but without any Cerebral Symptoms. The man contracted syphilis at the age of 18 years and was treated for a short while. Four years later he had rupia with severe pain in the joints, iritis, and posterior synechia in the left eye. Treatment was resumed. He remained free from symptoms for ten years until September, 1904, when a lump formed on the vertex followed by sloughing of a circular patch of scalp, then by necrosis of the skull beneath until the cerebral pulsations appeared but the man was meanwhile able to work, not suffering from headache, giddiness, or other cerebral symptoms until his admission to hospital. There the dead bone was removed by trephining and a large subcranial collection of pus was found between the skull and the dura mater.

Mr. C. H. FAGGE showed a case of Uretero-lithotomy for Calculus in a young girl. A girl, aged seven years, had in 1901 pain in the right loin with hæmaturia. In 1903 the same symptoms returned and she was operated upon for an umbilical hernia. In September, 1904, she had a return of the pain, with a tender spot two inches to the right of the umbilicus, and under an anæsthetic a small hard mass could be felt. A calculus was found in the ureter about one inch below the kidney which appeared to be normal. The calculus was removed and the ureter and abdominal wall were sutured. Healing followed and the urine became normal a week after the operation.—Mr. DOUGLAS DREW suggested that it was important in such cases to examine the kidney, since a second stone might be present, and also to exclude the possibility of a suppurative pyelitis being present.

Dr. F. PARKES WEBER showed a case of Localised Flushing and Sweating on Eating, which, together with "Striæ Patellares," followed appendicitis ten years ago. The symptoms had persisted since the former exhibition of the patient in October, 1897. When he began to chew solids a patch of redness immediately appeared on the *left* cheek and the skin sweated. When this was at its maximum a smaller and less marked patch might appear in front of the *right* ear. Vinegar and water in the mouth, also mastication movements of the jaws, called forth the appearance to a less marked degree. Swallowing did not produce the phenomenon. After ceasing to chew, the sweating and then the redness slowly disappeared. The striæ patellares were well marked, like the lineæ albicantes gravidarum, and were attributable to the flexed position of the knees when suffering from appendicitis.

Mr. CHARLES R. KEYSER showed: 1. A case of Goitre in a boy, aged five years. A lump appeared in the neck in September, 1904, with anorexia, occasional vomiting, and malaise. The swelling appeared to be a parenchymatous goitre and increased to the size of a hen's egg. The boy had always lived in London and no other member of the family had been similarly affected. The tumour had rapidly diminished under treatment by iodine and iodide internally and mercury iodide externally. 2. A case of Recklinghausen's Disease. A man, aged 38 years, had had all his life a number of small, rounded, subcutaneous tumours which were steadily increasing in number. He said that one brother was similarly affected and that his mother died from the disease. The tumours were all soft and absolutely painless; there were two areas of pigmentation, but there were no signs of malignancy or of nervous disease. The patient was very deaf, following scarlet fever in childhood, and suffered from chronic bronchitis and emphysema.

Dr. H. BATTY SHAW showed: 1. A case of Acromegaly in a man, aged 36 years. Enlargement of the fingers and hands had been noticed for four or five years and numbness and tingling for three years. A radiogram of the hand showed the changes in the phalanges. Eight or nine years ago the patient wore No. 6 boots, now No. 8; the great toe was markedly enlarged and the skin was thicker. The skull had enlarged, the eyelids were thickened, the nose was broadened, the wrinkles on the face were deepened, and the voice was hoarse, but the eyes and vision were normal and there was no kyphosis. The patient was sometimes troubled by headache and by drowsiness. 2. A case of Acromegaly occurring in a woman the subject of Chronic Disease of the Chest. The patient was now in the Brompton Hospital for Consumption, under Dr. S. H. Habershon, with disease of the left chest. The hands and fingers had enlarged and also the feet; the malar eminences were prominent, the lower lip was protruded, as were the eyelids, giving a heavy dull expression. The tongue was enlarged. The patient suffered from headache, insomnia, and morning vomiting but there were no eye symptoms. Photographs and radiographs further illustrated the case and distinguished it from pulmonary hypertrophic osteo-arthropathy. 3. A case of Bilateral Wasting of the Subcutaneous Tissues of the Face in a boy, aged 10 years. This commenced after the age of two and a half years. Three years ago he attended the Victoria Hospital for Children and the wasting became more marked after measles two years ago. The wasting appeared to affect the subcutaneous tissues, but not the skin, muscles, or bone. The condition was bilateral. There was no muscular paralysis or wasting in any other part. The patient had had no illness, except some slight rheumatic symptoms and choreic movements.

Mr. W. G. SPENCER showed the case of a boy three years after Removal of a Large Cystic Adenoma of the Left Kidney. In the summer of 1901, when the boy was aged 12 years, the mother first noticed the swelling but she said that he had always had a "big stomach." In January, 1902, the boy was first taken to Dr. Redmond Roche who diagnosed the case.

Abdominal nephrectomy was performed by a T-shaped incision; some vascular adhesions of the diaphragm caused a temporary disturbance of respiration. The half of the specimen in the Westminster Hospital Museum was shown and Mr. S. G. Shattock's description of the other half in the Museum of the Royal College of Surgeons of England was appended.—Mr. HUTCHINSON, jun., suggested that as only part of the kidney was affected a partial nephrectomy was all that was necessary and he had in one case removed half the kidney for such a condition.

Mr. SPENCER also showed a child after recovery from Infantile Paralysis of the Deltoid. He said that when the subject of nerve-grafting for such cases was before the society in October last the girl was in Dr. F. de Havilland Hall's ward and could not then raise the arm from the side at all. The child had been kept under Dr. Hall's observation and had had the arm rubbed and electricity used. She could now raise it easily above the head and seemed to be recovering well.

Dr. F. E. BATTEN showed a child with Graves's Disease and Myxœdema at the age of ten years. She was a fat child, with a pale puffy face and hands, squeaky voice, and placid slow manner, and had considerable thyroid enlargement and a pulse-rate between 118 and 140. She had a waddling gait. Other signs of nervous or visceral disease were absent. 13 weeks ago the child fell downstairs; 11 weeks ago headache came on with such severity that the child had to be kept in bed; and six weeks ago the enlargement of the neck and puffiness of the face were first noted.

Sir DYCE DUCKWORTH showed a case of Xanthoma Diabeticorum. The patient, a man, aged 23 years, had diabetes in September, 1904. A sister died from the disease at the age of 31 years. He was first of all treated privately, then at St. Thomas's Hospital, and was admitted to St. Bartholomew's Hospital in December. On Dec. 24th a large number of small papules appeared over both elbows. The papules were hard, shotty, and a small amount of yellowish material could be pressed out. On the 31st the papules had increased in size and fresh ones appeared symmetrically over the back, the buttocks, the knees, and scantily on the face. On Jan. 25th the papules were increasing in size and number. The amount of urine averaged 100 ounces per diem and was of specific gravity 1034. Perchloride of iron reaction was present. The sugar on admission was 25 grains per ounce and on Jan. 25th it was 12 grains per ounce. The body-weight on admission was 8 stones 6 pounds; on Jan. 25th it was 7 stones 8 pounds.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

Exhibition of Cases.—Milk-supply of Edinburgh.—Friedreich's Ataxia.

A MEETING of this society was held on Jan. 18th, Professor JOHN CHIENE, the President, being in the chair.

Dr. W. ALLAN JAMIESON exhibited a case of Psoriasis which illustrated the effect of oxidised pyrogallic acid in treatment. The patient was a man, aged 31 years, who exhibited the gyrate form of the disease. Treatment was commenced on Nov. 7th, 1904. An ointment of chrysarobin, salicylic acid, and ichthyol was applied and caused the characteristic erythema and considerable improvement. The outer margins of the eruption remained, however, red and raised. In place of the chrysarobin, oxidised pyrogallic acid was added to the ointment which was rubbed in twice daily after a bath containing fluid superfatted potash soap. The skin became very dark brown and assumed a silky smoothness in contrast to the desquamation which followed the use of the chrysarobin. Owing to the improvement produced the treatment was discontinued on Jan. 7th, 1905. Dr. Jamieson also showed a case of Lupus treated by the x rays after a prolonged period of rest. The patient was a girl, aged 15 years. The disease commenced in 1899 on the right cheek in several patches. Various remedies were employed but no improvement resulted. She had been treated partly with the Marshall and Wood's lamp and partly, and more particularly, with the x rays between September, 1902, and February, 1904. A few nodules which remained were treated with fused chromic acid. Nothing had been done since September, 1904, and the lupus seemed to be cured.

Dr. W. G. AITCHISON ROBERTSON read a paper on the Milk-supply of Edinburgh, with Suggestions for its more stringent Control. After mentioning the closeness of the relation between the milk-supply and the hygiene of infancy he referred to the great frequency of infantile diarrhœa caused by the presence of "dairy bacteria" in milk. He said that the amount of lactic acid present in milk might be taken as a very fair standard of the degree of putrefaction present and it was his custom to determine the freshness or staleness of milk by the percentage of lactic acid present. Applying this test to milk as sold in some of the shops in the poorer districts of Edinburgh, Dr. Robertson found that during the summer in 54·8 per cent. of these dairies the acidity of reputedly fresh milk was above 0·181 per cent. If lactic acid were given even in minute amounts to infants it produced gastric and intestinal catarrh, and if tubercle bacilli of bovine origin were introduced into an intestine with a mucous membrane already weakened by the ingestion of such acid milk all the conditions were present for the easy passage of such tuberculous organisms into, and through, the mucosa. He believed it was in this way that abdominal tuberculosis was developed. He then proceeded to discuss the reasons for tuberculosis being so common amongst dairy cows. At present there were in Edinburgh 115 cowsheds licensed to contain 3417 cows. In many cases byres containing from 20 to 40 cows were situated in densely populated localities, often behind lofty tenements and approached by narrow lanes or alleys. From the time when the cows were bought until they were again sold they were never allowed out from such byres; this might mean a period of close confinement lasting from nine to 15 months and occasionally for much longer periods. The cows were also greatly overcrowded. The cubic space recommended by the Local Government Board for each animal was 800 cubic feet, but in many of the older cowsheds in Edinburgh only 600 cubic feet were allowed to each cow and yet on measurement of the available air space to each animal he had found in many instances only from 370 to 450 cubic feet. He was of opinion that at least 1000 cubic feet should be allowed to each cow and that this should be distributed over a far wider floor-space than was customary. After all, however, the amount of cubic space was not to be compared in importance to the amount of fresh air which ought to be supplied to each animal. As a rule the dairy-keeper objected to too free a ventilation as it lowered the temperature of the byre and so the yield of milk became lessened. In consequence of the insufficient amount of cubic space and the totally inadequate supply of fresh air the air in cowsheds was apt to be much vitiated. He was thoroughly convinced that the extreme prevalence of tuberculosis in dairy cattle was due entirely to these factors—namely, overcrowding, insufficient ventilation, and want of sunlight and exercise. Tuberculosis in cows had made an immense advance during the past few decades and this corresponded to the period during which prolonged detention of animals in cowsheds had been the custom. He affirmed that every one of the city cowsheds ought to be abolished and that every dairy farm should be in the country in order that the cows might live healthy lives and so yield healthy milk. In order that this might be attained the animals must be allowed to graze in meadows during the entire day and should, if necessary, only be confined in freely ventilated and roomy sheds during the cold nights of winter. The yield of milk would be smaller but the quality would be superior to that of stall-fed cattle. Maternal nursing ought to be encouraged and he alluded to the inducements in this respect held out to mothers in many towns of France and recently introduced into Huddersfield by the mayor. If this were unattainable then all milk destined for the use of infants and children ought to be pasteurised, and thus "prepared milk depôts" were a necessity in towns and such must be controlled by the local authorities and supervised by medical men.—Dr. G. H. MELVILLE DUNLOP said that Edinburgh was behind continental and other cities as regarded the proper control of the milk-supply. He proposed that a committee of medical men should be appointed to inquire into the milk-supply of the city.—Dr. JAMES CARMICHAEL said that Dr. Robertson had wisely laid emphasis on the necessity of medical men advising mothers to nurse their children but he had not alluded to the fact, too evident in the present day, that unfortunately in town communities the proportion of mothers able to do so was diminishing. Sterilisation of milk, he thought, was not now necessary; pasteurisation had largely taken its place and

was desirable in all cases owing to the difficulty of obtaining pure fresh milk. He seconded the proposal for the election of a committee.—Dr. WILLIAM ROBERTSON, medical officer of health of Leith, alluded to the limited powers which the authorities at present had in regard to the control of cowsheds and dairies. Special by-laws would be necessary to enable the changes indicated to be made.—The following gentlemen were nominated to serve on the committee: Dr. Dunlop, Dr. Carmichael, Dr. J. S. Fowler, Dr. William Robertson, Dr. H. Harvey Littlejohn, and Professor Chiene, with Dr. Aitchison Robertson as convener.

Dr. HARRY RAINY read a paper on the Nature of Friedreich's Ataxia. In it he gave an account of the lesions found in a case which he had investigated and the pathological conclusions which these observations appeared to warrant were that (1) the nature of the degeneration was uniform; (2) the distribution of the degeneration (as observed in the posterior columns of the cord) indicated that the lesion followed the course of the individual nerve roots; (3) the primary lesion seemed to be a premature disappearance of the nerve elements, either from deficient longevity or from some developmental defect perhaps associated with imperfect myelin production; and (4) the degenerated nerve elements were replaced by interstitial tissue which by degrees cicatrised and so formed at first whorls, then later a felted mass of fibres. This process might gradually encroach on healthy areas. There was probably a marked increase in the number of mesoglial cells.—Dr. ALEXANDER BRUCE and Dr. D. CHALMERS WATSON took part in the discussion which followed.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF SURGERY.

Cholecystotomy.—Prostatectomy.—Exhibition of Patient.

A MEETING of this section was held on Jan. 13th, Mr. G. JAMESON JOHNSTON being in the chair.

Mr. R. C. B. MAUNSELL read a paper entitled "Cholecystotomy for Acute Cholecystitis following Typhoid Fever." The cholecystitis manifested itself on the twenty-seventh day after the patient's admission to Mercer's Hospital, Dublin. The muco-pus removed from the gall-bladder contained a pure culture of Eberth's bacillus. Mr. Maunsell briefly described the affections of the gall-bladder which might complicate enteric fever and he strongly advocated operative treatment. In looking up the literature of the subject he had noted instances of complications arising 14½ years after typhoid fever and in some of these cases pure cultures of the typhoid bacillus were obtained.—Mr. JAMESON JOHNSTON described two cases of typhoid fever in which complications had arisen calling for surgical intervention. In one there was necrosis of the laryngeal cartilages and in the other there was a chronic abscess of bone and in both of them typhoid bacilli were found in the pus.—Sir CHARLES BALL said that he had seen many cases in which disease of bone had occurred many months after typhoid fever. He related a case also in which, during the acute stage of the fever, a large abscess developed in the upper lobe of the lung.—Dr. J. M. FINNY said that in his opinion the question of interest in Mr. Maunsell's case was whether the acute cholecystitis was a complication of the acute fever or a sequela. These complications were to be expected, not in the height of the fever, but just when the patient seemed to be getting better. He did not think typhoid bacilli were the sole cause of the complication in the present case, as they were often found in great numbers in the gall-bladder without any results, locally or otherwise, in the neighbourhood.

Mr. C. A. K. BALL introduced a discussion on Conservative Perineal Prostatectomy by referring to the methods of prostatectomy as usually performed by the suprapubic or perineal route, which he considered could not be regarded as ideal surgical procedures, for the prostate had to be removed largely by the sense of touch; hæmorrhage during these operations was not fully under control; and the amount of injury inflicted on the bladder, the urethra, and the ejaculatory ducts was frequently considerable. He said the question to be decided was, Could the prostate, or rather a sufficient part of the prostate, be removed so as to relieve the patient without inflicting permanent injury to important anatomical structures? Perineal prostatectomy, as performed by Dr. Young of the Johns Hopkins Hospital in Baltimore, seemed to him to fulfil these conditions more fully than the methods previously advocated. He then proceeded to explain Dr. Young's operation of conservative perineal prostatectomy, showing that the lateral and median portions of the prostate could be removed without injuring the mucous membrane of the bladder or the urethra and ejaculatory ducts, a matter of some importance now that prostatectomy was being done in younger men. The mortality after the perineal operation was less than half the mortality after the suprapubic operation.—Mr. JAMESON JOHNSTON stated that he had always performed the suprapubic operation and still thought it the right one. He did not think that there were such things as lobes in the enlarged prostate; the prostate was simply adenomatous and there was no definite lobar arrangement. The ingenious idea of Lane's operation was to be admired—namely, the preservation of the ejaculatory ducts.—Mr. EDWARD H. TAYLOR stated that he had been present at Mr. Ball's prostatectomy operations and was impressed by the ease with which the prostate could be exposed by means of a curved incision in front of the anus and the facility with which the capsule could be peeled off the lateral lobes and the large veins of the vesico-prostatic plexus avoided. Against the operation was the fact that it entailed an extensive dissection and division of the compressor urethræ muscle. There was considerable risk therefore of injuring the sphincteric apparatus of the bladder and of subsequent incontinence of urine. There was much less risk of incontinence with the suprapubic operation.—Mr. JOHN LENTAIGNE, Mr. STONEY, and Sir THOMAS MYLES also took part in the discussion.

Mr. MAUNSELL showed a patient upon whom he had operated for Acute Cholecystitis and subsequently for Gangrenous Appendicitis.

EPIDEMIOLOGICAL SOCIETY.

EPIDEMIOLOGICAL SOCIETY.—A meeting of this society was held on Jan. 20th, Dr. B. A. Whitelegge, the President, being in the chair.—Dr. G. B. Longstaff read a paper on the Etiology of Rheumatic Fever, beginning with a reference to a paper that he had read before the society in the year 1880 and had subsequently published in his "Studies in Statistics." In this paper he had called attention to the statistical indications of a relation between erysipelas, puerperal fever, scarlet fever, and rheumatism, the graphic curves of the first two being practically identical. He had found no connexion whatever between cold and the prevalence of rheumatism but a sort of inverse relation with the rainfall nearly as close as that between diarrhœa and hot weather. Dr. A. L. Galabin in 1902 having pursued the same line of investigation into another 20 years confirmed the identity of the curves of erysipelas and puerperal fever even in years when these were most complicated, and showed their marked difference from those of septicæmia and pyæmia, concluding that of all septic diseases erysipelas was the most dangerous to the puerperal woman and suggesting that in those years in which scarlet fever was most frequently attended by septic complications streptococci were most widely diffused, the streptococcus pyogenes being the cause of septic and purulent complications in all specific and non-specific diseases. The new classification of rheumatoid diseases by the Registrar-General removing ulcerative endocarditis from valvular diseases had lessened the similarity of the curves of rheumatic fever and erysipelas and given the former a very characteristic one of its own. In opposition to the teaching of Dr. Charles Murchison, Dr. J. S. Bristowe, and Dr. F. T. Roberts the present school represented by Professor William Osler and Dr. I. Burney Yeo had transferred acute rheumatism to the class of acute infective, though non-contagious, diseases of microbial origin and placed ulcerative endocarditis among the septic. Dr. A. Newsholme's exhaustive examination of the prevalence and fatality of rheumatic fever in many countries and its association with dry seasons had contributed greatly to this change of opinion. The error of ascribing the disease to "chills" had, like all errors in etiology, an influence for evil on therapeutics. Under the new classification rheumatic fever and rheumatic affections of the heart and pericardium, excluding chronic valvular diseases and ulcerative endocarditis, were classed as rheumatic fever and rheumatism of the heart and pericardium. Rheumatoid arthritis was rightly transferred to other constitutional diseases as unwisely was rheumatic gout, which

was gout pure and simple, the few remaining causes of death in rheumatic persons being provisionally entered as residual rheumatism. Many deaths, however, from chronic valvular disease of the heart were due to previous attacks of rheumatic fever. After noting the numerical changes consequent on the re-arrangements of the classification Dr. Longstaff proceeded to discuss the geographical distribution of the deaths from rheumatic fever and rheumatism of the heart and pericardium. The death-rate in the period 1891 to 1900 was everywhere except in Wales notably less than it had been in 1881-90, but in each the London and north-western districts stood highest and the east and northern midland lowest, Wales, however, mounting from next the lowest to a place between Yorkshire and London. In all this there was not the smallest indication of a connexion with temperature or humidity. Curves representing the death-rates at each age in the former period, in which acute and subacute rheumatisms were relegated to the miscellaneous group of what he would call residual rheumatism, showed the former more fatal in early life and the latter after middle age. But while the transfer of acute and subacute rheumatism and its inclusion under rheumatic fever and rheumatism of the heart had had no effect on the curve, which still had its maximum between the ages of from 5 to 15 years, it had converted the curve of the residual group from one in which the deaths from the acute forms neutralised the effect of those from the chronic into one in which they saw a regular ascent from childhood to old age, culminating between the sixty-fifth and seventy-fifth years, a character further emphasised by the removal of rheumatoid arthritis and of rheumatic gout. The causes of rheumatic fever seemed to be gathering strength during the latter months of summer, the maximum intensity of the disease being in November.—Sir W. S. Church expressed his distrust of statistics, especially international, in which the fallacy of differing nomenclatures was added to that of doubtful diagnosis. For instance, the *rhumatisme grave* of the French in which empyema was an occasional complication could not be the same as the disease called acute rheumatism in England. What, he asked, were the causes of death in the group of so-called residual rheumatism since the chronic disease was not itself fatal? The prevalence and mortality of rheumatic fever in London and Yorkshire were explained by the fact of its being an urban disease as was its recent increase in South Wales. All army statistics opposed the climatic theory of its causation. Ulcerative endocarditis was set up by a totally different microbe.—Dr. Newsholme said that the mortality of a disease like rheumatic fever with a fatality of less than 2 per cent. gave a very imperfect index of its prevalence and that, as with diphtheria, the great importance of local conditions was concealed in statistics drawn from the whole country or from large districts which effaced the peaks and depressions of the curves indicating local epidemics or their absence. However their curves might resemble one another the smallest prevalence of erysipelas corresponded with the greatest of rheumatic fever. The idea of a relation between rheumatism and the specific infective fevers was not new, having been indicated by Prout, Trousseau, Farr, and others according to their lights. He maintained the influence of subsoil, even in London, and remarked that rheumatic fever was epidemic after very dry years.

HARVEIAN SOCIETY.—A clinical meeting of this society was held at the Stafford Rooms, Tichborne-street, Edgware-road, London, W., on Jan. 26th.—Dr. J. J. Perkins showed a man suffering from Addison's Disease. There were pigmented spots on the skin and in the mouth. There had been faintness on micturition but no attacks of vomiting. Dr. Perkins also showed a young man suffering from Bronchiectasis who had been much improved by tracheal injection of creasote in oil. He had gained in weight.—Dr. H. Batty Shaw showed a patient with Recklinghausen's Disease associated with Dilated and Dropped Stomach. The patient was admitted to University College Hospital in February, 1904, under the care of Dr. Sidney H. C. Martin. Mr. R. J. Godlee also saw the patient and discovered on the body and head from twenty to thirty small subcutaneous masses which caused pain on pressure; two were excised and found to be fibromata lying in close relation to nerves. A few days ago the patient was again examined; the pigmentation and flat warts had increased. In addition the stomach was found to be lying in the suprapubic region; it was greatly distended and when in peristalsis caused severe colicky pains. No tumour could be felt.—Mr. E. Laming Evans showed a case of Severe Multiple Deformity in a girl, aged 14 years, following infantile paralysis at 14 months which had received no treatment. Besides a severe lateral deviation with rotation of the spine, a bulging of the anterior abdominal muscles, and a double calcaneo-cavus, all of paralytic origin, there was a contracture at the hip-joints of 135 degrees. As a compensatory curve, the degree of lordosis was extreme.—Dr. Maurice F. Squire showed a man, aged 31 years, with a history of Right Otorrhœa all his life, Gonorrhœa, and Sores, but no Secondary Symptoms. Two weeks before Christmas, 1904, he commenced vomiting, which had continued intermittently ever since with headache. He complained of frontal headache of variable intensity. Vomiting was occasional and with a little preceding nausea. Mentally the patient was rather dull. There were no alteration of sensation or movement, no incoordination, and no localised tenderness. There was doubtful flattening of the left face. Movements of the eye were normal but there was marked right optic neuritis. With regard to the ears, there was an old dry perforation in the left ear and a large polypus was removed from the right ear where there was a slight discharge. A few days ago he had some retraction of the head. The patient was rather improved since the removal of the polypus but the symptoms and physical signs suggested the question of cerebral or cerebellar abscess. As there was no localising symptom he proposed to wait and to watch events.—Mr. E. Percy Paton showed a man, aged 55 years, who first began to notice a swelling on the right side of his neck nine months ago which had increased in size. He thought there could be no doubt that the mass was malignant and inoperable and also that the growth was primary in the neck, either being sarcomatous and commencing in the glands or carotid body or possibly epitheliomatous in connexion wtih the remains of one of the branchial clefts. His impression was that it was an endothelioma beginning in the lymphatic glands or the carotid body.—Dr. Leonard G. Guthrie showed a man, aged 52 years, who had for seven or eight years complained of increasing difficulty in walking. There was no history of syphilis. The condition was probably one of steady progressive degeneration in the neighbourhood of the corpora quadrigemina and perhaps of the left cerebellum or its peduncles. It would probably result in paralytic dementia or tabetic general paralysis.—Dr. Alexander Morison showed a case of Bilharzia Hæmatobia in a man, aged about 30 years, who had been a cavalry soldier in the South African war. Hæmaturia was first noticed after bathing in the Blood river.

SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN.—A clinical meeting of this society was held on Jan. 20th at Chandos-street, W., Dr. Percy G. Lewis being in the chair.—Mr. F. Jaffrey showed two cases of Volkmann's Contracture which had occurred in the right forearms of two girls, aged two and seven years respectively, as a result of fractures.—Dr. W. H. Kelson showed a boy, 12 years of age, whom he had treated by the galvano-cautery for Lupus of the Epiglottis and Left Vocal Cord, the voice returning. The upper part of the epiglottis was wanting and the stump had been covered with red papules. The ventricular bands, the left vocal cord, and the anterior commissure were similarly affected. There were no history of syphilis, no evidence of lung disease, and no tubercle bacilli in the sputa.—Dr. L. G. Guthrie showed a girl, aged 12 years, whom he brought before the society in December, 1903, as a case of Aortic Stenosis. He was still of the opinion that the physical signs indicated aortic disease and thought that there might be some congenital malformation in the neighbourhood of the aortic valves. The girl was highly rheumatic. As on the former occasion, various opinions were expressed on the physical signs and the conclusions to be drawn from them.—Dr. A. Morison showed a boy, ten years of age, with marked Double Aortic Disease and Mitral Regurgitation. There was an indefinite history of rheumatism.—Dr. G. Carpenter showed a child with Congenital Pulmonary Stenosis and probably a Patent Septum Ventriculorum.—Mr. Donald J. Armour brought forward a boy, aged four years, with a Peno-scrotal Form of Hyposadias with a view to elicit the opinion of members of the society as to the best kind of operative treatment and the best age at which to carry it out.—Dr. G. E. C. Pritchard showed a girl, six years of

age, to illustrate Hæmophilia, hereditary in the male line for two generations and evidenced in the third in a severe form in a female. The child had suffered from severe attacks of epistaxis since babyhood. Her father and grandfather were affected but no other members of the family.—Mr. G. Pernet showed a case of Generalised Lichen Planus of three month's duration in a boy aged six years. The boy had a "tower skull," ptosis, with absence of the upward movements of the eyes, and a highly arched palate. He also showed a child, aged four months, recently vaccinated, with a Circinate Gyrate Erythema Multiforme.—Dr. J. G. Emanuel (Birmingham) showed a most remarkable specimen of Congenital Multiple Occlusions of the Small Intestines from a seven months' infant who died nine days after birth. The child had vomited since birth but no stool had been passed. As the result of an enema a large motion of meconium was passed. There was complete atresia of the bowel at the duodeno-jejunal juncture, the duodenum being much hypertrophied and dilated, being larger even than the stomach. In two other places the jejunum was completely absent for about half an inch. In five other places, in the jejunum and upper part of the ileum, the gut was completely occluded by annular constrictions. There were no signs of intra-uterine peritonitis.—Mr. A. T. Marshall showed a specimen of a Collar Stud impacted in the Œsophagus and Perforating the Trachea. It was removed post mortem from a female infant, aged seven months. It had produced consolidation of the right lung, ulceration into the trachea an inch above the bifurcation, and pus in the trachea and the œsophagus.

HUNTERIAN SOCIETY.—A pathological meeting of this society was held on Jan. 25th, Mr. John Poland being in the chair.—Mr. Poland showed a Fallopian Tube removed from a Femoral Hernia; the ovary was not seen.—Mr. W. H. Kelson showed a very extensive Carcinoma of the Larynx obtained from a patient shown at the society a year ago. Tracheotomy had been performed and later, when the growth spread back to the œsophagus, nasal feeding was resorted to. The patient suffered very little pain and died from asthenia.—Mr. Hugh M. Rigby showed a specimen of a Tuberculous Stricture about the middle of the jejunum. Just above the stricture there was an ulcer which had perforated and produced general peritonitis. The perforation was sutured and invaginated. A lateral anastomosis had been performed four inches above the stricture. The patient had experienced no symptoms from the stricture until perforation occurred. He died the day after the operation from the peritonitis due to the perforation.—Mr Harry Overy (introduced by Dr. W. Langdon Brown) exhibited a very well-marked example of Congenital Syphilitic Liver cleft into many Lobules by Deep Fissures. Several large gummata were also present in the liver. The microscopical sections showed perilobular and intercellular cirrhosis. The spleen was much enlarged and cirrhosed. The kidneys were lardaceous. Mr. Overy also showed Two Kidneys taken from the same patient. The one was small and studded with many cysts of the size of hazel nuts. The other was large and fibrous. Sections of the two kidneys were identical in showing chronic interstitial nephritis. The patient was 53 years of age.—Mr. J. H. Targett took the view that this was a case of congenital cystic kidney.—Mr. H. L. Barnard thought that these kidneys showed an intermediate stage in the formation of acquired general cystic disease of the kidneys. He did not think the adult form was in any way congenital or connected with the Wolffian body but was simply an exaggerated form of the small cysts so generally seen in granular kidneys.—Dr. H. Russell Andrews exhibited a specimen of Fibroids of a Double Uterus which he had removed by abdominal hysterectomy.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Jan. 20th, Dr. David Newman, the President, being in the chair.—Dr. Alfred A. Young showed two patients who had been operated upon for Ruptured Gastric Ulcer and he read the notes of two other cases. The two patients were operated on within six hours of the rupture. In both cases the stomach was empty at the time of the perforation. The ulcers were situated about the middle of the lesser curvature, one on the posterior and the other on the anterior surface. In neither case was there much fluid in the peritoneal cavity at the time of the operation and this was washed out and the abdomen was closed without drainage. In neither case was the ulcer excised. The patients made a good recovery. A third case was operated upon 24 hours after perforation when the whole of the abdomen was distended and full of brownish septic fluid. There was a history of an attack six days previously which seemed to point to a perforation which had been recovered from. At the operation a large perforation was present on the anterior wall with adhesions around it and a smaller one a little distance off. The peritoneum was much inflamed. The perforations were closed and the abdomen was washed out as well as possible. The abdominal wound was stitched without leaving any opening for drainage. The patient went on very well for nearly a month but then slight fever set in which was followed by a left-sided pleurisy. A large left-sided subdiaphragmatic abscess was evacuated shortly after but the patient died on the fifth day after the second operation. A fourth case was that of a young woman subject to indigestion who was suddenly seized with violent pain in the epigastrium with great collapse and symptoms of perforation though there was no general peritonitis. With rest and rectal feeding the patient made a good recovery. This was taken to be a case of perforation limited in its effects by adhesions.—Dr. MacLennan showed two patients upon whom he had performed Riedel's Operation for Chronic Osteo-myelitis of the Tibia. A number of x ray plates were shown to illustrate the regeneration of bone. The operation consisted in chiselling, gouging, or scraping the anterior part of the tibia away till only a strip connected the cancellous ends. If the disease started originally in the epiphysis it was cleared out, the epiphyseal cartilage being carefully protected. After some months the adherent scar was excised and a linear cicatrix moveable upon the tibia resulted. Dr. MacLennan was strongly of the opinion that more bone lesions which resisted less drastic treatment ought to be treated as if the medulla were infected and the shaft mostly removed. The method was applicable to other bones. The results were invariably good. Dead bone ought to be treated by the open method rather than allowing it to separate.—Dr. William Watson read a paper on the Etiology and Pathology of Scarlet Fever.

BRITISH BALNEOLOGICAL AND CLIMATOLOGICAL SOCIETY.—A meeting of this society was held on Jan. 18th, Dr. W. V. Snow being in the chair.—Dr. C. W. Buckley read a paper entitled "Climatology from a Medical Standpoint." Dr. Buckley said that the study of climatology from a medical standpoint must be subjective rather than objective. Meteorological observations were only of value as interpreting our sensations of weather which were composed of a very complex association of climatic factors and had not been sufficiently studied from that aspect. Even the subjective sense of atmospheric temperature was a complex of temperature, humidity and wind, while such climatic characters as bracingness were made up of these factors, together with pressure and, to a less extent, sunshine. He discussed in detail the effect of each factor on the system and briefly indicated the combinations which they entered into in producing their conjoint effects. Reference was made to a series of observations taken in Shanghai, under the direction of Mr. W. F. Tyler, and by means of charts the important influence of the absolute humidity on the bracingness of a climate was indicated and also the fact that the readings of the wet bulb thermometer were a more trustworthy guide to the subjective temperature than of the dry bulb. In conclusion he pointed out the desirability of the society undertaking the systematic study of English climates from the subjective aspect and of endeavouring to discover definite relations between this aspect and the meteorological readings.—Dr. F. Bagshawe said that in some municipalities provided with a staff of official observers meteorological records were looked for from that source only and thus individual observers were few. In the study of local climates the influence of some winds formed a leading factor in determining the climate of a place. Warmth and absence of fog were promoted by hills screening from northern currents while free exposure to southern breezes freshened the air. Relaxing places were often surrounded by hills.—Dr. W. Ewart, Dr. F. Rufenacht Walters, Dr. F Parkes Weber, Dr. W. J. Tyson and Dr. S. D. Clippingdale also discussed the paper.—Dr. Buckley, in reply, quite agreed that meteorological statistics of rainfall and rainy days were no indication of the number of days fine enough for an invalid to go out and said that although the subjective method of recording variations of weather was open

to fallacy, probably equal fallacies arose from the present method of estimating climate from records of one or two meteorological factors. He was glad that the opinion that absolute humidity was of more importance than relative from a medical standpoint had received so much support.

ROYAL MEDICAL SOCIETY, EDINBURGH.—A meeting of this society was held on Jan. 20th.—Dr. J. M. Beattie read a paper on the Pathology of Rheumatism. In the course of his remarks he discussed the bacterial theory of the disease, giving a detailed account of its history and the evidence upon which it rested. In three fatal cases of rheumatism he had been successful in obtaining from the knee a micrococcus similar to the organism found by Poynton and Paine. In one of these cases he had obtained this micrococcus in pure culture from the spleen and in impure culture from the urine. The organism was a small diplococcus sometimes arranged in short chains. On inoculating rabbits with this micrococcus he was able to recover it from the urine, knee, heart blood, and brain. After considering the theories which suggested that the condition was really due to an attenuated pyæmia or streptococcal septicæmia he concluded by stating that the micrococcus was plainly the specific organism and the cause of rheumatic fever.—Mr. T. Graham Brown read a paper on Brown-Séquard Epilepsy.—Dr. Wilson-Smith read notes of two cases of Acute Nephritis in which the capsule of the kidney was stripped.——At a meeting of the society held on Jan. 27th Mr. N. C. Forsyth read a dissertation by Dr. C. R. P. Mitchell on Head Injuries. He first briefly discussed the anatomy of the scalp and went into the subject of scalp wounds, dividing them into those which penetrated and those which did not penetrate the aponeurosis of the occipito-frontalis muscle. He continued by giving the various lines of treatment for each class. The next subject to be taken up was that of facial wounds and Dr. Mitchell treated this part of his subject more especially from the standpoint of facial disfigurement. He then went on to define the term concussion and discussed the diagnosis, treatment, and complications of the condition, giving a full description of the operations practised when the middle meningeal artery was severed and favouring Chiene's method of localising the site for trephining. He then took up the subject of fractures of the head, balancing the various theories of causation and adopting the view that the site of the fracture was determined by the bursting of the skull at its weakest point. Dr. Mitchell also discussed the various methods of treatment and concluded by touching lightly on fractures of the bones of the face and on intracranial suppuration.—Dr. V. T. Carruthers showed two cases of Tumours.—Dr. Chambers showed a case of Addison's Disease.

BRADFORD MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held at the Royal Infirmary, Bradford, on Jan. 17th, Mr. C. F. M. Althorp, the President, being in the chair.—Mr. Vaughan Bateson showed some photographs of a case of Sarcoma of the Scapula and Magnified Finger-prints as used for personal identification under the new system of classification adopted by the Government. He then read a paper on a case of Granuloma Fungoides. The clinical history was given and the remarkable deformity produced was well illustrated by photographs, the great changes of the facial condition at different stages of the disease being well shown. The details of the history and the report of the pathologist were of an interesting nature and especially the connexion, causative or otherwise, of a flagellated bacillus found in the tumour masses. Its rarity and the obscure pathology made the subject one for a brisk discussion which followed the paper, Mr. J. Basil Hall, the President, and Dr. F. W. Eurich taking part therein.—Dr. A. Bronner read a paper on the Local Use of Orthoform in the Treatment of Painful Ulcers, with special reference to tuberculous laryngitis. Used with boric acid powder, 1 in 10, in these cases, it was surprising how complete and immediate the relief was. Dr. Bronner also said that its use was equally beneficial in cases of burns, fissure of the anus, and gastric ulcer.—The President, Dr. Campbell, Dr. W. E. Heilborn, and Mr. Hall took part in the discussion.—Dr. Bronner replied.

NEWPORT MEDICAL SOCIETY.—A meeting of this society was held on Jan. 25th, Dr. T. Morrell Thomas, the President, being in the chair.—Several interesting cases were exhibited and discussed.—Dr. T. G. Lewis read notes on a Case of Intestinal Hæmorrhage.—Mr. J. McGinn read notes on a Case of General Tuberculosis with Unsatisfactory Result from Surgical Interference and Decisive Improvement under Open-air Treatment.—Mr. C. Brooke Gratte read notes on a Case of Post-partum Hæmorrhage treated with Adrenalin Chloride.

Reviews and Notices of Books.

A Treatise on Applied Anatomy. By EDWARD H. TAYLOR, M.D. Dub., F.R.C.S. Irel., Surgeon to Sir Patrick Dun's Hospital; University Examiner in Anatomy and late Lecturer in Applied Anatomy, Trinity College, Dublin; Member of the Council and late Examiner in Surgery, Royal College of Surgeons, Ireland. Illustrated with 178 figures and plates from original drawings, many printed in colours. London: Charles Griffin and Co., Limited. 1904. Pp. 738. Price 30*s.* net.

WE have perused this work with considerable satisfaction. The author states that his object has been to provide an account of the regional anatomy of the human body in its more important applications to medicine and surgery. He, like most others of practical experience, is an advocate of the teaching of anatomy to students of medicine from the applied standpoint. This method was some years ago instituted in the medical school of Trinity College, Dublin, and also by one, if not more, of the larger London hospitals. The arrangement adopted by Dr. Taylor appears to us an excellent one. A concise but not sketchy account of the anatomy of each region is given in small type and the practical bearing of anatomical facts on the diseases and the injuries of the region in question is then discussed. Embryology and its influence on congenital malformations come in for a due share of the author's attention. The main scope of the book, as would be expected from the author's proclivities, is surgical; medicine receives a certain amount of attention but nothing like that devoted to surgery. In fact, the author admits that the title of "Surgery from an Anatomical Standpoint" would well describe his book. The treatise differs from the majority of the English text-books which deal with the same subject in the amount of anatomy which it contains. This feature will render the book particularly useful to those who are preparing for the final surgical examinations as well as to those whose anatomy is getting rusty from lapse of time. The anatomical descriptions, as we have already indicated, are concise, but, what is more important, they are essentially in accordance with modern teaching and methods of description. The surgical bearings are in every instance fully considered and afford a useful and interesting commentary on the anatomical facts.

A regional arrangement has been adopted under the following main headings: Head and Neck, Upper Extremity, Thorax, Abdomen and Pelvis, and Lower Extremity. In the section on the Brain the author explains and illustrates his own method of determining the topography of the principal fissures and convolutions on the outer surface of the cerebral hemisphere. A review is not the place in which to describe the method but when compared with those at present in vogue it most resembles that of Anderson and Makins and, like this method, is said by its author to be elastic and applicable to skulls of varying size and contour, contrasting in this respect with the methods of Reid and of Hare. We miss any representations of the segmental nerve areas of the body. This is surely an oversight. The illustrations are deserving of great praise. Most of them are original, being drawn from specimens in the medical school of Trinity College, Dublin, by Mr. James T. Murray of Edinburgh. They have been chosen with care and discrimination and really illustrate the points under discussion. For commendation we especially single out those

devoted to visceral topography and the anatomy of hernia. We predict that this treatise will take a prominent place amongst the many books dealing with the same subject. It has obviously cost its author much time and labour and we unreservedly congratulate him on the great measure of success which he has achieved.

A Manual of Surgical Diagnosis. By JAMES BERRY, B.S. Lond., F.R.C.S. Eng., Surgeon to, and Lecturer on Surgery at, the Royal Free Hospital; formerly Surgical Registrar and Demonstrator of Anatomy, of Operative Surgery, and of Practical Surgery at St. Bartholomew's Hospital. London: J. and A. Churchill. 1904. Pp. 363. Price 6*s.* net.

DIAGNOSIS is probably the most difficult part of surgery to the student. He can learn and repeat glibly the causes, signs, symptoms, and treatment of a disease or injury but he is often completely at a loss when confronted with a case. This book will help the student in the difficult task of distinguishing between various conditions which have signs in common. Of course, diagnosis is not to be learnt from books but in the out-patient room and in the ward, and there the student must go to learn it, but a book like this may be of much service to the diligent and careful student who is anxious to advance in his work; it will show him how to apply in practice the knowledge he has already acquired in theory. The author has, we think, acted wisely in limiting the scope of the work to the more common conditions, for it is these which will especially be encountered both by the student and the practitioner. It is not possible to include in a volume intended for the student the whole of surgical diagnosis. The book is well and carefully written and is a reflex of the author's surgical experience. To one point we should like to call attention. On p. 305 the term melæna is apparently used as synonymous with "blood in the motions"; this is a pity, for both etymologically and by usage it should be restricted to the dark tarry stools which owe their colour to altered blood.

Light Energy: Its Physics, Physiological Action, and Therapeutic Applications. By MARGARET A. CLEAVES, M.D., Fellow of the New York Academy of Medicine; Fellow of the American Electro-Therapeutic Association; Professor of Light Energy in the New York School of Physical Therapeutics, &c. London: Rebman, Limited. 1904. Royal 8vo, pp. 827. Price 21*s.* net.

THIS book is sure to be welcomed by those members of the profession who are directly or indirectly interested in the therapeutic application of the various forms of light energy. The subject is treated from the basis of the modern theory that light is energy in the form of waves of a certain length and direction, with a slight reservation in favour of the emission theory in view of the peculiar behaviour of some of the recently discovered radio-active substances—notably radium. About 130 pages are devoted to a description of the various kinds of rays, their origin and physical properties. The part dealing with the electric arc is very complete and clear and embraces all that is requisite to insure an intelligent application of the arc lamp in the treatment of disease. Then follows a series of chapters on the action of light on the various forms of life from the most elementary to the highly complex human subject. In this section the action of light of different kinds from both natural and artificial sources is treated in a very thorough manner. It is quite evident that the author has devoted herself to a large amount of painstaking experiment, the valuable results of which are recorded in the present volume. In her experience the mercury vapour lamp has not justified the expectations regarding it as a therapeutic agent.

The second half of the book is taken up with the therapeutic applications of light in its varied forms. Sun, arc, and incandescent baths are fully dealt with and also their use in those diseases in which the author has found them respectively of service. The indications are in every instance based on spectroscopic analysis and full details of the proper technique are given for every variety of application. Several forms of bath cabinet are described as well as arc and other lamps for local treatment with concentrated light. While the author is emphatic on the necessity of employing lamps of large amperage—quantity being as essential as quality—yet she speaks highly of certain small lamps the efficiency of which was so low as to necessitate their replacement by lamps of greater power in the light department of the London Hospital. The reason is seen later to be related to the comparative cost of the lamps, the smaller being sold and maintained at a fraction of the cost of the Finsen lamp and their efficiency is at least in proportion to this cost. According to this author the great advantage of a lamp of high amperage, like the Finsen, is that we get not only the short and high frequencies of intense chemical activity but also the frequencies of long wave-lengths having great amplitude and penetrability—a combination which is essential to insure the best success. In the smaller lamps these long wave-lengths of great amplitude are not present in such abundance because of the lesser amperage and smaller carbons.

The results which the author has obtained in many diseases not generally subjected to light treatment will come as a surprise to those who have not kept closely in touch with modern light therapeutics. The applications of light of various colours, as also those of the invisible spectrum rays, are fully discussed. A short chapter is given to the consideration of "n" rays and one to the alpha, beta, and gamma rays of radio-active substances, their physical properties, actions, and therapeutic uses. An interesting chapter is that on fluorescence, fluorescent stimulation, and sensitisation of tissues, and the book closes with a chapter on the occasionally injurious effect of sunlight and the pathological effects of electric lighting. The x rays have not been included in the volume since that subject is so extensive and has been so ably dealt with by others.

Leadless Decorative Tiles, Faience, and Mosaic. By WILLIAM JAMES FURNIVAL. Stone, Staffordshire: William J. Furnival. Pp. 852. 1904.

As medical journalists our interest in the ceramic art is centred in the question of the effects of the industrial operations concerned upon the health of the workers. Foremost amongst the proposals to improve the sanitary conditions of those engaged in the pottery trade has been that of dispensing with as far as may be practicable, raw lead or even "fritted" compounds used in glazing and substituting glazes entirely free from lead. No one has contributed more usefully and more energetically to the advancement of this subject than has the author of the interesting and handsome volume before us. Mr. Furnival has attacked the question in a very practical way: he has given to the world a number of formulæ for the preparation of leadless glazes and these formulæ, we are assured, give satisfactory results. At any rate, in a report published in 1899, Professor T. Oliver and Professor T. E. Thorpe, as specially appointed commissioners for the Government, wrote: "We have no doubt whatever that leadless glazes of sufficient brilliancy, covering power, and durability and adapted to all kinds of table, domestic, and sanitary ware are now within the reach of the manufacturer, and we have reason to believe that this fact is now more generally admitted by the trade itself than it was six months ago. ..... Leadless glazes are equally applicable to white, cream, buff, and printed tiles. We have seen excellent examples of tiles so glazed." In 1898 Mr. Furnival published a book entitled "Researches on Leadless Glazes" which was reviewed in THE LANCET of Nov. 19th, 1898.

This book, as was then pointed out, contained the important results of a great number of laborious experiments directed to the practicability of producing leadless glazes and employing them in pottery. The work before us, whilst dealing with further researches of this kind, covers much wider ground, including such interesting subjects as a historical review of decorative tile work, the rise of the modern industry, the sources and preparation of clays, materials, and colourants, ceramic pyrometry, mosaic pavements and mural decoration, and so forth. When we add that there is scattered throughout the pages a series of admirable plates illustrating both ancient and modern tile work it will readily be conceded that the work is not only technically but æsthetically interesting also. Some of the photo-blocks illustrating Babylonian clay tablets, Assyrian enamelled bricks, Syrian and Turkish tiles, Indian enamelled tile work, and mosaic turrets are cases in point. Many of the blocks are three-coloured and others are monochrome and lithograph. The historical treatment of the subject has induced Mr. Furnival to seek the assistance of certain well-known authorities. Thus the work includes the following interesting and well-written contributions:—Notes on the Decorative and Architectural Use of Glazed Tiles and Faience in China, by Dr. Stephen W. Bushell, for over 30 years resident physician to H.M. Embassy at Peking, author of "Oriental Ceramics"; A List of the Principal Existing Monuments in India upon which Tile Work Decoration appears, by Mr. C. Stanley Clarke, of the Indian Section, Victoria and Albert Museum; Notes on the Tile Decoration found on Buildings in Punjab and Bengal, by Mr. J. H. Marshall, Director-General of Archæology, India; and Designing for Ornamental Tile Work and Faience, by Mr. Ambrose Wood, Hanley, Staffordshire. Altogether it is a very interesting and attractive volume which is sure to be consulted by all those who are engaged in the technical matters of the ceramic art, who are concerned with it in its relations to the use of deleterious materials, and who make the application of art to decorative work a serious study. We congratulate Mr. Furnival on the completion of what must have been a big task. Finally it may be pointed out that according to the returns of cases of lead-poisoning in the potteries for 1904 there is a decided increase. Whereas there were 87 cases in 1902, 97 cases in 1903, the number has reached 106 for 1904. These facts furnish an excellent *raison d'être* for the publication of this volume.

LIBRARY TABLE.

Examination Questions. Edinburgh: E. and S. Livingstone. Pp. 283. Price 2*s.*—This is a collection of questions set for some years past at the various medical examinations held by the University of Edinburgh, the Royal Colleges of Physicians and Surgeons of the same place, and the examiners for the qualification of the Triple Board. They are brought down to July, 1904. The collection should certainly be useful to those preparing for examinations as showing them the class of questions which they may expect to meet.

A Star Calendar for 1905. London: Hirschfeld Bros. 1904.—This calendar consists of four sheets containing the calendar for three months on a sheet, together with a star chart for the same three months showing the appearance of the sky between 7 P.M. and 10.30 P.M. To those who live in the country this chart will be found of great interest but the dweller in London or other large town will find it of but little use, for even on a clear night, which is rare, he can only see the stars in the zenith or near it on account of the smoky air. Moreover, his horizon is contracted by houses and the light from street lamps seriously interferes with his view of the stars.

Vegetarian and Simple Diet. By Colonel A. R. KENNEY-HERBERT. London: Swan Sonnenschein and Co. 1904. Pp. 450. Price 3*s.* 6*d.* net.—While fully convinced of the general advantages of a mixed diet, we think it probable that many people, especially those who live a sedentary life, eat too much meat. This being so we are glad to welcome the appearance of a book which will teach householders that appetising dishes can be made from vegetables with the aid of eggs and milk products. Of course there is one great difficulty in the case of town dwellers (and they are just the class of persons whom a superfluity of meat harms)—namely, that it is almost impossible to get fresh vegetables. The difference between a cabbage or a cauliflower cooked when just cut and those which have been packed for days in a market cart or have been imported from Brittany or even the Channel Islands is enormous. But even London vegetables are better than none and Colonel Kenney-Herbert's book gives admirable recipes for cooking and serving the same. We are particularly glad to see his anathema of the ordinary English "melted butter," that abominable compound of "corn-flour" and water with possibly a little butter or milk. His directions for cooking rice are altogether admirable but we are rather surprised that he has omitted any reference to garlic as a vegetable, although he mentions it as a flavouring. Garlic which has been blanched in three or four waters and finally gently stewed in a little stock makes a delicious dish and the garlic flavour is by this treatment so attenuated that nine people out of ten who partake of it do not know what they are eating.

Vegetables and their Cultivation. By T. W. SANDERS, F.L.S. London: W. H. and L. Collingridge. Pp. 463. Price 5*s.* net.—This little book gives a description of vegetables used for cookery, salads, and flavouring, together with directions for their cultivation and an account of garden friends and foes. Of course its main value will be to dwellers in the country but we wish that Mr. Sanders had laid more stress than he has upon the custom which every gardener follows of refusing to cut vegetables until they are fully grown. Globe artichokes in particular can be nearly all eaten if they are cut young enough; no gardener, moreover, will ever pull either beans or peas until they are far too old to be at their best for eating. Horticultural shows have a great deal to answer for and are mainly responsible for "mammoth peas" and "giant potatoes." The small early grey-green pea is of far finer flavour than the great hulking marrowfat which is the joy of the London greengrocer but of course it takes a great many more small peas to make up a pint or a pound than it does big ones, hence from the commercial point of view growing small peas is unprofitable.

The Crusade against Phthisis. By A. B. DE GUERVILLE. London: Hugh Rees, Limited. 1904. Pp. 34. Price 6*d.* net.—This is a brightly written description of the treatment carried on at Dr. Otto Walther's sanatorium at Nordrach-Colonie. It is from the pen of a layman and the pamphlet does not contain any point which is not well known and understood by the members of our profession. It is a tribute by a sufferer who has recovered to the physician who has done so much for him.

I. I-Em-Hotep and Ancient Egyptian Medicine. II. Prevention of Valvular Disease. The Harveian Oration, 1904. By RICHARD CATON, M.D. Edin., F.R.C.P. Lond., Consulting Physician, Royal Infirmary, Liverpool. London: C. J. Clay and Sons. 1904. Pp. 34.—The first part of this oration is archæological, dealing with Egyptian medicine, the medicine god, and the earliest inquiries known to have been made concerning the circulation and circulatory diseases. The information gathered concerning the line of study to which Harvey devoted his attention is of a most interesting nature and is presented by the orator in a

charming manner. The text is illustrated by various views of temples either built by, or in the days of, I-Em-Hotep, who was distinguished as a "physician, a minister of the king, a priest, a writer, an architect, an alchemist, and as an astronomer—great in all, but greatest in medicine." In the second part of his oration Dr. Caton presses on the attention of the profession the necessity for the special treatment of recent valvulitis. The treatment advocated is to secure the most absolute quiet and rest for many weeks; to administer sodium or potassium iodide, partly to help in the absorption of morbid exudations but chiefly to lower vascular tension; and lastly, to endeavour to influence the cardiac vaso-motor and trophic nerves reflexly by gentle and almost painless stimulation of those cutaneous nerves which we know to be in close relation with the heart—viz., the first four dorsal nerves.

Materia Medica of Vegetable and Animal Origin. By JOHN HUMPHREY. With an Introduction by E. M. HOLMES, F.L.S. (Kimpton's Pocket Text-book Series.) London: John Kimpton. 1905. Pp. 495. Price 5*s.* net.—This is a well-arranged little book which will be valuable both to students of pharmacology and to pharmacists. It contains all that it is necessary to know about crude drugs of vegetable and animal origin. The uses of the drugs are dealt with concisely, the chemistry is brought up to date, and the book is well indexed. All the unofficial drugs in common use, as well as those which are official, are dealt with. It is a handy pocket volume but it will naturally be of more service to the druggist than to members of the medical profession. The drugs are dealt with in alphabetical order. The author is a practical pharmacist.

Familiar London. By ROSE BARTON. London: A. and C. Black. 1904. Pp. 208. Price 20*s.* net.—London for many of us has the extraordinary fascination that alcoholic drinks have for the dipsomaniac. We would fain get away from it but we cannot. And in this book we find Miss Rose Barton confessing with her pen, "I never leave London without a pang," and when we look at the reproductions of the charming drawings from her brush with which the book is illustrated we do not wonder at her confession. All those who live in London will be delighted with the book, for besides the illustrations, many of which will be familiar to those of our readers who visit the exhibitions of the Royal Water Colour Society, Miss Barton has written a gossiping account of various London localities, scenes, and celebrities which will give many a Londoner information which will be new to him. How many, for instance, of the thousands who go up and down the Strand every day know the meaning of the heads on the keystones of the arches supporting the basement of Somerset House?

Hazell's Annual for 1905. Edited by W. PALMER. London: Hazell, Watson, and Viney. Price 3*s.* 6*d.* net. Pp. 756.—The 1905 issue of this valuable Annual is in no way inferior to any of the foregoing. It is impossible really to review a work of this kind but we may say that the Annual before us gives information upon all kinds of matters with which the ordinary educated British subject should be familiar. One pleasing feature of the work is the absolutely impartial manner in which such burning questions as education and religious matters are treated. It is extremely difficult for anyone who cares at all seriously about such subjects to write impartially upon them. It is also equally difficult for anybody who does not care to write intelligently and with knowledge but "Hazell's Annual" seems to have overcome these difficulties. The Annual is a worthy pendant and complement to "Whitaker."

Diaries.—We have received from Messrs. Bemrose and Sons, Limited, 4, Snow-hill, London, E.C., and Derby, twelve little books, each measuring about three and a half inches by two and a quarter inches, with pleasing dark-green paper covers, one for each month of the year. They are known as Bemrose's Monthly Diary and are of a most convenient size to go into the waistcoat pocket. Each day of the month has a page allotted to it and at the back of the diary is a page for memoranda and a folio for a cash account. On the second page of the cover is a calendar for the year and on the third page is a list of some inland postal regulations. There are only two little things to which we take exception—the odd appearance of "Whitsun Day" for Whit-Sunday or Whitsunday and the popular error of "Parcels" Post for Parcel Post.

JOURNALS AND MAGAZINES.

Edinburgh Medical Journal.—With the year 1905 this journal celebrates its centenary, as it was founded in 1805 under the title of the *Edinburgh Medical and Surgical Journal*, appearing quarterly under the editorship of the younger Andrew Duncan. In 1855 it was amalgamated with a younger contemporary, the *Monthly Journal of Medical Science*, and has appeared ever since under the title which it then assumed as a monthly magazine. It has been presided over by a series of distinguished medical luminaries and owing to the high position which it has always occupied it has been the medium for the publication of papers from many notable representatives of medicine. Hence its pages afford material for an almost continuous history of the advances which have been made since its foundation. The January number is devoted to a retrospect of its past achievements in the form of a series of articles dealing with notable contributions to medicine, surgery, obstetrics, and the allied sciences which are to be found in its back numbers. The result is a most interesting and instructive chapter of medical history. Some excellent portraits of past editors are included.

Dublin Journal of Medical Science.—The January number of this periodical opens with an article by Sir William Thomson on Operative Methods, New and Old, in Tuberculosis of the Knee-joint, which is practically devoted to a vindication of excision of the articulation. The author records a series of 78 cases in which this operation was performed, with two deaths, and quotes very satisfactory results obtained by Sir Thornley Stoker and Sir Thomas Myles. Sir Arthur V. Macan deals at considerable length with Accidental Hæmorrhage and sums up his experience in a number of propositions, from among which we will only quote the opinion that rupture of the membranes is not good treatment for ordinary cases of this nature unless it causes rapid expulsion of the child. Mr. E. F. Stephenson reports a case of glanders in a human subject, the site of infection being apparently the mucosa of the mouth; the facts recorded tend to show that the bacillus mallei can exist for so long as two years in a virulent condition in stable manure.

West London Medical Journal.—To the current number of this magazine Dr. A. E. Russell contributes an interesting paper on the Diagnosis of Acute Abdominal Disease. He quotes statistics showing that of all such cases no less than 37 per cent. are due to affections of the appendix vermiformis, whereas only 6 per cent. are due to pelvic conditions. Dr. C. H. Fennell writes on Mental Deficiency in Children in regard to Prognosis, and Mr. Stephen Paget contributes an interesting lecture upon Head Injuries, in which he alludes to the benefit derived by a certain number of patients suffering from such conditions from venesection—a practice which in these days has fallen into perhaps undeserved disrepute—and discusses the indications for trephining. Among the Society Proceedings is recorded and illustrated a case of unilateral lesion of the tenth, eleventh, and twelfth cranial nerves with resulting paralysis of the sterno-mastoid and trapezius muscles, as well as of the soft palate, the vocal cord, and half of the tongue on the same side.

New Inventions.

A NEW BED AND FOOT WARMER.

THE accompanying illustration shows an ingeniously designed bed and foot warmer which will probably be found useful in hospital and nursing-home work. It is made in two portions hinged together at the ends by a removeable pin, so that when opened it is four feet long—i.e., large enough to warm the whole length of a bed or the whole width of a double bed. When closed it measures two feet long and forms an excellent foot warmer. Each half can be

used separately for different beds if required. In the illustration the warmer is represented partly open and the method of filling it is shown. It is solidly and neatly made in block-tin and also in copper, the price being 7*s.* 6*d.* in the former material and £1 2*s.* 6*d.* in the latter. It holds six pints and weighs about eight pounds when filled. The patentee and maker is Mr. F. Coates, 14, Thavies Inn, Holborn-circus, London, E.C.

A STERILISABLE INHALER FOR ANÆSTHETIC MIXTURES.

THE accompanying figure represents an inhaler which has been made to my order by Messrs. Gardner and Son, Forrest-road, Edinburgh. I wish to draw attention to this apparatus because it is not an addition to the great number of inhalers already on the market but merely an improvement on one which was introduced several years ago by Mr. Clarence Blake of Boston and which deserved more favour than it

received. In its present form the inhaler consists of a truncated cone of nickel silver inside which a wire gauze cone is retained by a spring. The former has an opening at the top about one inch by two inches, the lower opening measuring five inches by three and a half inches. The whole inhaler, which weighs only six ounces, can be sterilised by boiling and in using it a piece of one and a half or two inch domette bandage about one and a half yards long is wrapped about the inner cone before each administration, rather more being needed if ether alone be employed. In certain cases a piece of sponge with large pores is placed in the upper aperture when a full vapour of ether is desired. The inhaler is intended chiefly for the administration of A.C.E. or C.E. mixture but ether alone can be conveniently administered by means of it as stated, or even ethyl chloride, but for this last a bag inhaler is preferable. From its simplicity, adaptability, and portability the apparatus may prove to be particularly useful to medical men whose work is in the country, who only occasionally are called upon to administer an anæsthetic, and who require an inhaler which will not spoil in keeping or readily get out of order.

T. D. LUKE, M.B. R.U.I., F.R.C.S. Edin.,
Lecturer in Anæsthetics at the University of Edinburgh.

Looking Back.

FROM

THE LANCET, *SATURDAY*, Feb. 3, 1827.

The following WORKS[1] *have been received.*

L'Agent immediat du Mouvement Vital, devoilé dans sa nature, et dans son mode d'action chez les vegétaux, et chez les animaux. Par M. H. DUTROCHET, Correspondant de l'Institut, dans l'Academie Royale des Sciences, &c.

The author of the above work endeavours to elucidate the vital movement in the animal and vegetable kingdoms, by an explanation of the course that the juice takes in plants, and the causes of its propagation. M. Dutrochet thinks that the progression of liquids in vegetables, and in living bodies generally, is the result of a particular form, capable of accumulating them in a much greater quantity than could be done by simple capillary action. He establishes his opinion upon a series of experiments, in which, having placed in water a sac formed of an organic membrane, filled with very thick animal paste, he saw, after half an hour's immersion, the solid paste in great part driven from the sac by the water, which traversing its parietes, introduced itself into the cavity of the sac. Different experiments led the author to recognise that every time an organic membrane is interposed between two liquids of an equal density, a movement of one of those liquids takes place across the membrane; the movement being in general effected from the liquid possessing the least towards that possessing the greatest density. The power by which the liquid is pushed into the interior cavities, M. Dutrochet calls *endosmose*, and the contrary action *exosmose*.

The experiments of the author also show that alkalies placed in the interior of a membranous sac, always produce endosmose; while the acid under the same circumstances, produce exosmose, whatever may be the density of the liquids. This last circumstance leads the author to believe that the cause of such a phenomenon is purely electrical, and that the membrane in which it operates, holds the place of a permeable Leyden jar. In modifying his experiments according to this idea, M. Dutrochet placed an organic membrane in the inferior part of the tube, between two heterogeneous liquids, the one within the tube, the other without; by these means he succeeded in making the lowermost liquid pass into the tube, and in elevating it so as to make it pour over the sides. This effect is always maintained, up to the putrefaction of the membrane: all animal membranes, all vegetable textures have afforded the same result. The author also remarked, that in making the two extremities of a galvanic pile communicate with each side of the membrane, the liquid is always carried from the positive pole, or the least dense, towards the negative pole, or the most dense. The elevation of the temperature sensibly favours the endosmose, on which account the author thinks that inflammation in animals may be considered as a perendosmose. Whether the theory be correct or not, it is not our intention at present to discuss; we have seldom perused a work possessing so much valuable physiological knowledge, and we strongly recommend it to the attention of our readers.

[1] The work reviewed above is the first of a list of seven received and summarised.

THE LANCET.

LONDON: SATURDAY, FEBRUARY 4, 1905.

The Encouragement of Biological Research into the Nature of Disease.

THE importance of a sound biological training as a preliminary equipment for attacking some problems of disease is becoming more fully recognised. As proofs of this recognition we may cite the following instances. The knowledge of this necessity has determined some recent appointments in connexion with the London and Liverpool Schools of Tropical Medicine. There is talk of the University of London attempting to give concrete expression to the significant bearing of certain lines of zoological research on some of the pressing problems of disease. An influential body of men has founded a society for the encouragement of the study of economic zoology. The investigations of the Imperial Cancer Research Fund have been moulded on comparative biological lines and we have reason to believe that a new director of the cancer investigations at Liverpool has not been appointed for the sole reason that it has not been possible to secure a candidate with the needful qualifications for biological and cytological work. The Carnegie trustees in Scotland have given grants in aid of biological inquiries into the nature of cancer and in a recent address Professor HEKTOEN has urged the importance of biology upon the medical profession in America. From all this it will be seen that the relation of biology to the elucidation of disease is very much in the air, and deservedly so.

The biological nature of some aspects of the cancer problem has been frequently urged in our columns, but with every desire to encourage the serious biological investigation of disease it is not always easy to discriminate between the essentially biological papers which possess the practical medical bearings claimed for them and those which do not. This is all the more difficult when the customary medical nomenclature is replaced by the technical terminology of the biologist and the familiar pathological problem is presented dressed up in biological phraseology. We publish to-day a paper on cancer by Dr. JOHN BEARD, lecturer on comparative embryology in the University of Edinburgh, which is the third of a series that has appeared in our columns. The writer states that it is based on work carried out with the support of the ample funds for research at the disposal of the Carnegie trustees and the Moray Research Fund of the University of Edinburgh. We have thought it well to find space for this paper, for it seems to us to be a serious matter that it has been produced with the countenance of the wealthiest endowment for research in this country. The present contribution is itself the best commentary and criticism upon the two previous articles and its character makes it incumbent upon us to state clearly the illogical reasoning upon which Dr. BEARD'S conclusions are based, seeing that they have already received qualified acceptance from some pathologists who probably would not subscribe to a bald statement of the fundamental conceptions upon which a fantastic but seemingly logical superstructure has been raised.

This germ-cell hypothesis of cancer has been expounded in terms of the conception which its author entertains of the nature of vertebrate development. It must be clearly understood that the truth or the falsity of this hypothesis of cancer is dependent on the truth or the falsity of the embryological theories upon which it is based. These theories led Dr. BEARD to affirm in a former paper[1] that they necessitated the limitation of carcinoma to the mammalia in which division of the animal kingdom it was "a sequel to uterine gestation." This prophecy has not been fulfilled. The embryological views have not been modified but other investigators have shown that carcinoma is common to all vertebrates and the germ-cell hypothesis of cancer has quietly accommodated itself accordingly. Dr. BEARD never tires of reminding us that his embryological conclusions do not find general acceptance. After due inquiry into their nature we must confess that much of what is fact for Dr. BEARD remains very hypothetical to us. Our confidence in his conclusions is not restored by the assurance "that all the wonderful and infinite variety of animate nature" (including the neoplasms) "has its fount in *the unconscious memories of germ cells.*" Interpretation of all the facts of embryology in accordance with this view is without our province; but the "unconscious memory" of the germ cell—that it has had something to do with a chorion in past generations—leads us to recognise that for Dr. BEARD all malignant new growths are merely chorion (trophoblast, blastoderm, asexual generation of Dr. BEARD), which masquerades as a squamous-celled epithelioma or in the guise of the columnar cells of a malignant adenoma, or, indeed, in the garb of any one of the many histological groups of the carcinomata and sarcomata. The chorion is alleged to have unlimited powers of growth and to take on the histological character of the tissue in which it is growing provided that it develops without an embryo. The cancerous chorion develops from a germ cell without an embryo by skipping the embryonic stage in the life-cycle which Dr. BEARD has laid down for the vertebrates. The cancerous chorion naturally arises anywhere in the body, for it is said that the germ cells do not all find their way into the sexual organs. They are scattered through the tissues, where they lie dormant or grow, and we are at once brought face to face with all the old difficulties associated with CONHEIM'S "rests." The difficulties are but shifted back in the scale of development from the embryonic tissues to the germ cells. The "unconscious memory" of the germ cell is, however, elastic. It remembers that it has got to produce a chorion which has conveniently to mimic the tissues surrounding its nidus but the chorion breeds true to the character of the primary nidus in metastases. In assuming for the chorion unlimited powers of growth the germ cell—and Dr. BEARD with it—forgets that chorion does not possess such inherent powers of growth any more than does any

[1] THE LANCET, June 21st, 1902, p. 1758.

other tissue of the embryo or the adult. On the contrary, the assumption of such unlimited powers of growth is contradicted by accumulated pathological and experimental experience. In this connexion it is only necessary to refer to the very recent work of SCHMORL on the frequency with which chorionic villi become arrested in the vessels of the lungs during pregnancy without evincing any signs of growth. The "unconscious memory" of the germ cell is potent for evil. It conjures up "an ancestral acid peptic" digestion for the chorion and endows it with "an acid and eroding action," "for only by such could a cancer erode bone." We wonder if the aortic aneurysm which erodes its way through the sternum or the vertebral column owes this power to the same unconscious memory.

In short, Dr. BEARD passes from one conjecture to another. He begins by views on embryology which on his own showing are not generally accepted by embryologists. He goes on to express opinions on the histology and the pathology of cancer which are not in accordance with known truths and launches into the realm of therapeutics with assertions about the action of ferments which would inevitably cause the rejection of a candidate in physiology. We are anxious to encourage the serious biological investigation of cancer and we trust that we are doing so by eliminating from the hypotheses worthy of future consideration one characterised by more wild speculations in more fields of knowledge than any other with which we are acquainted. In the present chaotic state of the cancer problem there is much preliminary clearing up to be done and we can only regret that our opinions on the nature of those biological investigations of cancer which are worthy of financial support differ so essentially from those entertained apparently by the Carnegie trustees and the Moray Research Fund of the University of Edinburgh. In estimating the value of contributions such as that which we publish to-day much larger issues are raised than the mere scientific value of the paper itself. By the indiscriminate distribution of funds for research purposes proper support may be diverted from more important research in the true sense of the word and the question of the competence and the responsibilities of those administering funds for research purposes may obtain a prominence unfavourable to the reputation of British scientific medicine.

Myelopathic Albumosuria.

IN THE LANCET of Jan. 28th we published an article by Dr. C. W. PAGET MOFFATT on Myelopathic Albumosuria. This is a condition which has received little attention in medical text-books but communications on the subject are to be found in medical journals and in the transactions of the learned societies. Dr. MOFFATT remarks that myelopathic albumosuria is a new disease—new not in the sense of being the product of hitherto non-existent morbid processes but new by reason of its differentiation by careful clinical observation from other pathological conditions presenting a clinical picture similar in many respects to that of the disease in question. He further truly observes that the number of recorded cases is no trustworthy index of the frequency of its occurrence. When its indications are more generally recognised many more cases will probably be recorded. Such a series of events is by no means uncommon. Actinomycosis was for a long time considered a very rare disease but when the appearance of the pathogenic fungus became better known many cases were placed on record. The same remarks might also be applied to appendicitis and adenoids, conditions which have only been fully understood within comparatively recent years although doubtless they existed long before their true pathology became known.

Dr. BENCE JONES was the first observer to draw attention to myelopathic albumosuria and his observations were supplemented by Dr. MACINTYRE. Dr. T. R. BRADSHAW, however, was the first to diagnose the condition correctly during life and he was the first also to give this name to the disease. The symptoms may be described very briefly. There are pains in the back and sides, increasing weakness, and anæmia, and though there may be temporary remission of the acute symptoms they infallibly recur and progress to a fatal termination. Spontaneous fractures of the ribs have been noted, as also have tumours growing from the ribs and deformity of the dorsal and lumbar vertebræ. Albumose is found in the urine. Of the etiology nothing is known and the chief interest of the disease lies in the pathology and the pathological chemistry. The pathological changes are practically confined to the skeleton, the ribs, the sternum, and the vertebral bodies being always affected. Sometimes alterations have been demonstrated in the pelvic bones and the skull. The long bones have only been found to be diseased in a few cases. The new growth is gelatinous, soft, and vascular. In structure and clinical progress the growth seems to be allied closely to sarcoma but certain differences have been described by Dr. BRADSHAW. Particularly interesting is the examination of the urine, as it is only by the detection of "Bence Jones albumose" that the condition can be diagnosed accurately. It is, of course, important to distinguish this albumose from serum albumin and unless the differential analysis between the two is kept clearly in mind errors in diagnosis may easily be made. Dr. MOFFATT gives a description of the tests which are to be applied and fortunately they are easy of application and include no elaborate chemical processes. We need not detail the methods here but will refer our readers to the original paper. The source of the proteid body called "Bence Jones albumose" has not yet been definitely ascertained. Three hypotheses have been advanced: (1) That it is derived from the proteid constituents of the food which for some reason fail to undergo normal metabolism; (2) that it is produced by some abnormal metabolism taking place in connexion with the new growth in the bones; and (3) that its production results from some loss of function through the destruction of the bone marrow. Dr. MOFFATT quotes observations which have been made in support of the first and second of these propositions but he has not been able to find any record of investigations as to the probability of the third. The matter for the present must remain in abeyance until further work has been accomplished.

Dr. MOFFATT has written a valuable *résumé* of what is at present known in regard to the disease. He gives a detailed account of a case which was admitted into Dr. JAMES BARR'S wards in the Liverpool

Royal Infirmary and which exhibited the characteristic symptoms and the post-mortem appearances described by other observers. Finally he adds a comprehensive bibliography containing a list (a very considerable one) of writings which have been published on the subject. The communication is thus a very complete one and will doubtless draw attention to a malady which has not been widely recognised. The diagnosis can only be assured by an examination of the urine for certain diseases present symptoms which closely resemble those of myelopathic albumosuria and unless albumose is recognised by the proper chemical tests the true state of affairs may be missed. Amongst such maladies are osteomalacia, muscular rheumatism, spondylitis deformans, and others which are mentioned by Dr. MOFFATT. Now that such a clear account has been given of the principal clinical features of the disease suspicion will be aroused when the symptoms to which we have referred present themselves and we shall await with interest the records of other cases which may from time to time come under observation.

Injuries of the Pancreas.

OF all the many viscera contained within the abdomen none is more securely placed than the pancreas. Although it has not the shelter of the ribs yet between it and the anterior surface of the abdominal wall intervene many important structures. In addition to the anterior wall of the abdomen, there lie in front of the pancreas the small intestine, the transverse colon, the stomach, and the omentum. Still more protected is it from external violence coming from behind, for even if we do not reckon the great vessels, the aorta and the inferior vena cava, there are the second lumbar vertebra with the adjoining portions of the first and third vertebræ in the middle line and the psoas and quadratus lumborum muscles and the thick mass of the erector spinæ laterally, with many fascial strata. The pancreas thus occupies almost the centre of the body and any harmful force coming from without must first encounter other more superficial structures. Yet in spite of its central situation and its very protected position the pancreas is not very rarely wounded. It is true that in a number of the instances which have been recorded the pancreas was only one of several organs which had suffered injury from a severe blow but even in some of these the injury to the pancreas had been greater than that inflicted on the other organs and had in all probability been the immediate cause of a fatal issue. Until comparatively recently it has only been in fatal cases that we have known of any injury to the pancreas, for our knowledge of the physiology of the organ was too rudimentary to enable us to recognise a lesion of the pancreas by the physiological disturbance produced. Even now, indeed, it cannot be said that we are able to recognise by any very definite symptoms that an injury has been inflicted on the pancreas.

When the surgeon's dread of causing peritonitis prevented his operating on the abdomen the only cases of injury to the pancreas recognisable during life were those in which the viscus presented itself at a wound. Thus KLEBURG of Odessa described in 1868 a remarkable case which he had treated. A man, 60 years old, while stooping was wounded in the abdomen with a knife. The wound was horizontal, an inch in length, and was placed midway between the umbilicus and the right costal margin. From it projected a body three inches long, two inches in width, and with a thick free border. It was smooth on the surface and firm in consistence. Percussion showed that the liver was one and a half inches away from the mass, a band of resonance intervening. It was clearly not liver, stomach, bowel, or omentum. As it appeared to be strangulated KLEBURG decided not to attempt to return it, so he fastened the mass to the edges of the wound with sutures and having placed a ligature round the protruded mass he removed it with a knife. On microscopical examination the histological structure was that of pancreatic tissue. Complete recovery followed. In this case a portion of the pancreas was removed without any manifest general disturbance. The whole of the human pancreas has never been removed but the operation has been many times performed on the lower animals and the chief among the effects produced is the appearance of sugar in the urine. There can be little doubt that the same effect would follow complete removal of the gland in man and therefore in this we have a definite sign of the cessation of the function of the pancreas due to injury. A case in many espects similar to that described above has been recorded by LABORDERIE. A little girl, ten years old, while running fell upon an open pocket-knife which inflicted a wound a little below the lower border of the ribs on the right side and the pancreas was found projecting from the wound. An attempt was made to replace the organ but it only succeeded in part and the remainder of the prolapsed viscus was tied and removed with a scalpel. The patient recovered. CALDWELL has also put on record a similar case. A negro was stabbed in the left side and a mass three or four inches long protruded through the wound. This mass became gangrenous and was removed with a knife and on examination it proved to be pancreas. DARGAU has published a case in which the pancreas protruded through a wound between the eleventh and twelfth ribs on the left side. The organ was replaced, the wound was closed, and the patient made a good recovery.

In a case which occurred during the war between the Northern and Southern States of the American Union the opening through which the pancreas protruded was situated on the right side below the ribs. It was encircled with a piece of silver wire which was tightened every day and at last the mass was removed; recovery followed. Many cases of bullet wound of the pancreas have been described and in one instance the patient lived 15 days; the bullet had passed right through the abdominal cavity and had pierced the pancreas but no other organ had been injured. A case of interest and importance is one in which pressure of a tourniquet caused severe bruising of the pancreas. The patient had an aneurysm of the abdominal aorta not far from its bifurcation and an attempt was made to treat this condition by instrumental pressure on the aorta nearer the heart by means of an aorta tourniquet. In the few hours during which the patient survived the application of the instrument no symptoms referable to the pancreas appeared but at the post-mortem examination this organ was found to

be much bruised where it lay across the vertebral column. HADRA of San Antonio, Texas, records an interesting case. A boy, nine years old, was riding downhill on a bicycle and was struck in the epigastrium by the handle bar. Faintness and vomiting were present and some hours later he had abdominal pain which was relieved by opiates. Improvement occurred but it was slow and he did not regain his general health. The chief symptom present was an excessive and perverted appetite. About three weeks after the injury a definite swelling appeared in the epigastrium. There was evidently a collection of fluid behind the stomach which stood out in high relief with well-marked borders and the transverse colon could also be defined. The diagnosis made was rupture of the pancreas with leakage into the lesser peritoneal sac. The swelling was incised between the stomach and the transverse colon and about a quart of fluid was evacuated, alkaline in reaction and possessing amylolytic properties. This is probably the mode of origin of many so-called "pancreatic cysts" which follow injury and as the quoted case shows they may be operated on without much difficulty. Surgery, however, has done but little for injury of the pancreas and this is attributable mainly to the fact that it is rare for the pancreas alone to be injured but also to the great depth of the organ and to the usual absence of symptoms indicative of a lesion of the pancreas. So long ago as 1886 SENN prophesied that "the surgery of the future will undoubtedly deal with contusions and lacerations of the pancreas in connexion with visceral injury of some of its adjacent organs. If, in exploring for injuries in this region, the pancreas should be found extensively crushed it would be good surgery to remove the crushed portion after preliminary ligation of the organ on each side of the comminuted portion." In the present issue of THE LANCET is recorded a very noteworthy case in which a man was hit in the abdomen with the pole of a van and when the abdomen was opened by Dr. MARTIN RANDALL a tear of the peritoneum over the pancreas and also a laceration of the substance of the pancreas were found. The torn viscus and the peritoneum were sewn up and a gauze drain was left. After a lengthy convalescence complete recovery followed. Here we see a distinct advance in the surgery of injury of the pancreas. Previously replacement of a prolapsed pancreas or removal of a portion which could not be returned, or drainage of a traumatic cyst or pseudo-cyst, was all that surgery had done for a damaged pancreas. The case is important and marks the commencement of a new epoch in pancreatic surgery, though it is certain that the cases in which surgical intervention will be successful will be few and far between.

KING'S COLLEGE, LONDON.—With a view to prepare the way for the removal of the hospital to Camberwell and the separation of the preliminary and intermediate medical studies the council of King's College has dissolved the medical board and has created a board for advanced medical studies which will superintend the teaching work of the hospital and be organised as a separate department. The preliminary and intermediate studies have been transferred to the Faculty of Science under a separate board.

Annotations.

"Ne quid nimis."

THE HEALTH OF H.R.H. THE PRINCESS VICTORIA.

WE are authorised to make the following statement:—H.R.H. the Princess Victoria developed some time ago—when in her usual good health—evidences of trouble in the appendix. After an attack of influenza early in January these manifestations became more acute and it was considered desirable that the appendix should be removed at as early an opportunity as possible. The operation was simple and without complications and there is every reason to believe that Her Royal Highness will make a good recovery. Sir Francis Laking and Sir Frederick Treves are residing in Buckingham Palace. The nurses are Nurse Fletcher—who nursed His Majesty at the time of his operation—and Nurse Isaacs.

VISIT OF BRITISH PHYSICIANS AND SURGEONS TO PARIS.

THE French physicians and surgeons during their recent visit to London expressed the hope that they would be afforded the opportunity at no distant date of receiving a party of British physicians and surgeons in Paris to visit the hospitals, the science laboratories, and similar institutions, and to discuss further with them matters relating to medical education. To that end a committee was formed in Paris, with Professor Bouchard as president and M. Lucas-Championnière as vice-president, and last December an invitation was received by the London executive committee, of which Sir William Broadbent is chairman. There has been an exchange of views between the Paris and the London committees as to the dates on which it would be most convenient for the visit to take place. After the several possible dates had been discussed it became quite clear that in the opinion of our *confrères* the season of the year most suitable for the visit would be next May. An invitation has now been received from Paris definitely for Thursday, Friday, and Saturday, May 11th, 12th, and 13th, and has been accepted by the London executive committee. A circular letter has been addressed to all those gentlemen who contributed to the fund for the reception of the French visitors last October and they have been requested to inform one of the honorary secretaries (Dr. Dawson Williams, 2, Agar-street, Strand, London, W.C., and Dr. W. Jobson Horne, 27, New Cavendish-street, Portland-place, London, W.) whether they wish to take part in the return visit. At an early date the London executive committee will complete and forward to Paris the list of visitors. It is therefore important that those who have not already replied to the letter should do so without delay. Further particulars of the arrangements will be notified to intending visitors as soon as they are completed.

ROYAL SANITARY INSTITUTE: CONFERENCE ON SCHOOL HYGIENE.

A CONFERENCE on school hygiene will be held in the great hall of the University of London, South Kensington, from Feb. 7th to 10th next, under the auspices of the Royal Sanitary Institute. This conference is intended to pave the way and to prepare the ground for the International Congress on School Hygiene, which is to be held in London in 1907, by discussing some of the aspects of school hygiene which are of pressing importance. Over 100 education committees, colleges, councils, societies, and universities have up to the present appointed delegates, and these, with the members of the Institute, will be welcomed at a reception at 7 P.M.

on Tuesday, Feb. 7th. An hour later Sir Arthur W. Rücker, F.R.S., will deliver the Presidential Address on the Coördination of the Teaching of Hygiene. On Wednesday, Feb. 8th, the subject for the day will be Scholars. This subject will be dealt with under two headings; in the morning that of Physical and Mental Development during School Life and in the afternoon that of Physical Inspection. On Thursday the subject will be Schools, under the headings Building and Equipment and Sanitary Inspection. On Friday the subject will be Training in Hygiene, under the headings Training of Teachers and Training of Scholars. The meetings on Wednesday, Thursday, and Friday will begin at 11 A.M. and 2 P.M. each day. An exhibition of school building and furnishing appliances will be held in the same hall and will be open each day to those attending the conference and to all teachers from 10 A.M. to 6 P.M. and during evening meetings. Fellows, Members, and Associates of the Institute will be supplied with tickets on application and to those not connected with the institute the price of the conference tickets, which are obtainable from the secretary, is 10*s.* 6*d.*

FLANNELETTE.

"A SURGEON" writes:—

There are three kinds of flannelette—the ordinary, which is highly inflammable, but not more so, it seems to me, than other cotton fabrics; a variety which has been treated with some preparation which greatly reduces the flammability till the material is washed, when the virtue is lost; and a kind called "non-flam" which is said to be free from this defect. I send you a specimen of non-flam flannelette as bought and a piece of the same that has been washed 12 times; you will see that the claim does not appear to be fully borne out. For the prevention of these sad burns (referred to in THE LANCET of Jan. 21st, 1905) the following precautions suggest themselves. 1. The use of fireguards. Everyone approves of these but it must be remembered that in most English homes the day nursery and the kitchen are one and the same room; therefore the fireguard must be moveable. Perhaps the London County Council in the next block of workmen's dwellings it erects will set a good example by providing the kitchen fireplaces with swinging fireguards. 2. The prohibition of the sale of ordinary flannelette. This would not be much good, for the poor can afford neither flannel nor the "non-flam" varieties of flannelette. The latter cost about 7*d.* a yard, as against 2½*d.* for the ordinary variety, which can be made, it is said, non-flammable by soaking in alum after each washing. 3. The use of sleeping sacks with arms and a button at the neck, instead of a nightdress. The child could not walk about in a sack and therefore could not get to a fire and ignite its clothes, for it would be naked. In a recent case the child got up, took some matches, and set its nightdress alight, as the child herself said before she died. One defect of ordinary nightdresses is that a restless child kicks off the bedclothes and rolls up the nightdress under its arms, leaving its legs and half its body exposed.

We have made some tests with the samples which our correspondent has kindly forwarded to us. There is little doubt that the inflammability of the flannelette known as "non-flam" is practically *nil*. After several washings with soap and water, however, there is a tendency of the fabric to regain some of its original inflammable property; but even then this is nothing like so marked as in the untreated flannelette. This behaviour implies that the inflammable flannelette is rendered much less inflammable by treatment with a salt of some kind which after repeated washing of the material is to a large extent removed from it. "Non-flam" at any rate is loaded with mineral matter and according to our experiments this consists largely of a tin salt. We have also received a specimen of the "non-flam" material from the manufacturers which proved to be identical with the piece sent to us by our correspondent. The same correspondent in a further letter points out that in the two recent cases of burning alleged to be due to the use of flannelette the material in the first was a flannelette nightdress and the accident occurred at 9.45 A.M. not P.M. In the second case the child was dressed in flannel and not flannelette, the coroner eliciting from the mother that she had dressed the child in flannel since an attack of bronchitis. The suggestion of our correspondent in favour of the adoption of swinging fireguards seems to us therefore a valuable one and there is much to be said also for the proposal to substitute for the ordinary nightdress for infants a sleeping sack which would prevent the child getting close to the fire. Many children of the poor are probably allowed to play in their nightdresses for the greater part of the day. The fireguard would seem therefore to be the only effectual and practicable remedy against these sad occurrences and we think that the purchasers of flannelette and other inflammable wearing material should be warned about its dangers so that they may take every precaution to prevent the poor little irresponsible infants from exposing their dresses to the risk of ignition.

CURRENT THEORIES OF THE HEREDITARY PROCESS.

IN the third lecture[1] delivered by Professor W. F. R. Weldon, F.R.S., at University College, London, on Dec. 6th, 1904, the question of regeneration of lost parts was dealt with. A planarian worm cut across into two parts forms two entire worms, each half regenerating the missing parts completely. Cut into four parts of equal length, each segment similarly regenerates into a complete animal. Longitudinal splitting of the body into right and left halves results in regeneration of a double-bodied monster with one head. If, however, thin transverse slices are cut off from the middle region of the body a head develops from either cut surface. Such a two-headed monster is unable to feed and dies in a short time. The same occurs when the head of a planarian is cut off. The cut surface regenerates a second head but the dual structure dies shortly after. In the case of the common earthworm, if the anterior three, or even five, segments are cut off the rest of the body will regenerate the lost parts. Here both brain and stomach, which were removed by the operation, are redeveloped—an indication of high regenerative power. On excising the stomach and the ventral nerve cord, after removing the ventral halves of the fourth, fifth, and sixth segments, a new head grew out of the gap, producing an extraordinary double-headed monster. In the case of crustaceans the power of regenerating lost limbs is highly developed. Thus, if the entire leg except the minute pair of proximal segments is broken off a new leg develops from the short stump at the next ecdysis (casting off of the shell). If an eye of a crab is excised there is usually regenerated in its place an antenna (Herbst). This is because the optic ganglion—the immediate centre of regeneration—is removed in such an operation. If, however, the ganglion is situated deeply and is intact at the operation a normal eye is regenerated. The amphibia show, according to their higher position in the animal scale, less power of regeneration. If the eye of the salamander or newt is excised, leaving the posterior choroid intact, a proliferation of cells from the pigment cells of the choroidal margin takes place, forming a new lens—i.e., an imperfect eye. A frog deprived by operation of an upper limb will regenerate one or more abnormal limbs at the site of lesion. The higher vertebrates, and especially the mammalia, have very little power of regenerating lost organs. It is thus shown, concludes Professor Weldon, that the capacity for regeneration, strongly hereditary in the lowest organisms, gradually decreases to a minimum in the highest animals. The influence of environment in determining development is very potent in the case of lower organisms. Maupas and Calkins found that the water in which paramœcium lived for several generations "grew stale" and though well supplied with food the organisms in such an environment eventually became enfeebled and extinct. When the water was entirely changed the enfeebled paramœcia recovered vitality and vigour. The eggs of the sea-urchin can be stimulated to parthenogenetic development by the presence of a large quantity of carbon dioxide in the sea-water, as

[1] Abstracts of the first and second lecture were published in THE LANCET of Jan. 7th (p. 42) and 21st (p. 180), 1905.

was shown by Loeb whose experiments were recently confirmed by Delage. The nucleus has been held to be the sole vehicle of heredity by Weismann. Recent experiments of Boveri and Delage have demonstrated that this is incorrect. Both these writers have shown that denucleated eggs produced by mechanical extrusion of nuclei can be fertilised in the sea-urchin and that they give rise to normal blastulæ, gastrulæ, and larvæ. Hence the "determinants" of heredity are present in the cell body of the egg. If such eggs are fertilised by alien spermatozoa (of different sub-species) the larva shows the characters of the male parent, because the "determinants" of these are more potent. It is thus established that hereditary traits are transmissible through both parents and that one parent may be prepotent over the other.

THE SAFEGUARDING OF THE PUBLIC BY PRIVATE AGENCIES.

WE note that in a case referred to in another column, under the heading of "Medicine and the Law," after having successfully detected, prosecuted, and obtained the conviction of a man who had sold without complying with the prescribed regulations enough of a dangerous poison to kill 600 people, the Pharmaceutical Society was allowed out of the public funds set aside for such purposes the sum of £1 1s. towards its costs. This was after an application made by its advocate who no doubt laid due stress upon the service rendered. We have no desire to minimise such privileges and official recognition as the Pharmaceutical Society may receive in return for services of this kind to the community, nor would we deny that such an agency as, for example, the National Society for the Prevention of Cruelty to Children enjoys a high reputation and is in receipt of considerable funds in return for the good work which it does in the protection of infant life. Many other similar institutions could easily be named, not excluding the Medical Defence Union in its operations directed against illegal practice by quacks, or the Society for the Prevention of Cruelty to Animals which is not concerned with the preservation of human life, all of which, no doubt, do not work without in some degree earning the gratitude of the community. A question, however, may well be raised with regard to institutions concerned with aiding the administration of the law as to whether they do not do too much towards relieving the public authorities of expense and trouble which should rightly be theirs and whether some change would not be desirable, not in the direction of checking the associations referred to in the exercise of their peculiar activities, but rather in that of suitably compensating them for their expenditure and of encouraging the police to more systematic vigilance and more sustained efforts. It is by no means an uncommon occurrence to read at the conclusion of an inquest on some unhappy child who has fallen a victim to the negligence or brutality of his or her parents or guardians that the coroner hopes that the attention of the National Society for the Prevention of Cruelty to Children will be drawn to the case. It would be more satisfactory to learn that the police and the Treasury would promptly do their best to bring to justice persons apparently guilty of crime. We do not forget that certain expenses are allowed to the private agency by the court official who taxes the bill at the conclusion of the trial; but this represents only a portion of the expenditure involved. Where a public agency such as the police is primarily responsible the balance of the cost is paid from another public fund. When the prosecutors are a society composed of private individuals a portion of the expense incurred in enforcing the law of the land is left to be borne by volunteers actuated by benevolent sympathy with suffering. There can also be no doubt that the fact that an association prosecutes which has for its object the punishment of a certain class of crime is likely to some extent to prejudice the case presented against the defendant. "The police, against whom no sinister motive can be suggested, are," as an advocate for the defence might say, "standing aside They have not thought fit to take any steps but their place has been usurped by a society the very existence of which depends upon the number of convictions which it can secure." It is true that such reasoning as this carries no weight with those who are aware of the true state of affairs but it may have its influence with some benches of magistrates and with jurymen. A more or less private body of the nature of those referred to will always have ample scope for its expenditure in exercising a useful form of vigilance and it may be called upon to pay for its own failures. We do not desire to see anything done that would cripple the action of the Pharmaceutical Society in the prevention of illegal dealings in dangerous drugs but we suggest that when an offence against the public safety has been proved to have been committed it is the public purse and funds provided for the enforcement of the law which have to bear the expense.

LUMBAR PUNCTURE IN THE DIAGNOSIS OF MENINGEAL HÆMORRHAGE.

THE use of lumbar puncture in the diagnosis of diseases of the nervous system is a comparatively new procedure. At the meeting of the Société Médicale des Hôpitaux of Paris on Nov. 25th, 1904, M. Letulle and M. Lemierre reported two cases in which this method of examination enabled meningeal hæmorrhage to be diagnosed when it otherwise would not have been. In the first case a woman, aged 20 years, was admitted to hospital on July 21st, 1903. On the previous day after dinner she was suddenly seized with intense headache and vomiting which were soon followed by loss of consciousness. A practitioner who was called in found her comatose and very pale with a slow pulse; the pupils were normal. Suddenly clonic convulsions localised in the left arm and rigidity and contracture of the right arm began. The head was moved about without cessation; the tongue was put out and bitten several times. About 2 A.M. she was rendered quiet by an injection of morphine. The convulsions began again about 4 A.M. but ceased under the influence of an enema of chloral. Before the attack she had enjoyed good health. On admission she was comatose. When her name was called she opened her eyes and looked around and then shut them. The pupils were equal and moderately dilated. The left arm presented some rigidity but was not paralysed. The right arm was strongly contracted and seemed to be paralysed. The knee-jerks were diminished. The respiration was superficial but at times was interrupted by pauses and deep inspirations. The temperature was 100·4° F. and the pulse was 52. The urine did not contain albumin. The diagnosis was thought to lie between uræmia and tuberculous meningitis but lumbar puncture yielded sanguineous cerebro-spinal fluid. On the 22nd the coma persisted and there was profuse perspiration. On the 23rd the patient could respond to simple questions but immediately relapsed into coma. The arms were flaccid and inert. Babinski's sign was obtained but Kernig's was not. There was incontinence of urine and fæces. The morning temperature was 101·5° and the evening 102·2°. The comatose state continued but on the 26th there was delirium. On the 27th a bedsore formed on the buttock. On the 28th there was marked contracture of the arms which were held against the trunk with the forearms flexed and the hands clenched. Death took place on the 30th. At the necropsy on opening the dura mater the frontal lobes were found to be covered with a layer of clotted blood. The base of the brain was also covered by a clot which

extended backwards from the longitudinal fissure over the pons and medulla and upwards on to the cerebellum. The fourth ventricle was filled with clot. There was no hæmorrhage in the substance of the brain and the arteries appeared normal everywhere. On opening the spinal dura mater the cord was found to be covered completely with clot which in some places was half a centimetre thick. Microscopic examination of the brain did not reveal the source of the hæmorrhage or anything abnormal. The fluid obtained by lumbar puncture contained 230,000 red and 100 white corpuscles per cubic millimetre. The cause of the hæmorrhage remained undetermined. The absence of Kernig's sign is noteworthy for it is usually present in cases of meningeal hæmorrhage. In the second case the patient was a man, aged 52 years, addicted to alcohol, who was admitted to hospital on April 12th, 1904. On the previous day he returned home drunk, as usual, and was seized with epileptiform convulsions which were followed by coma, in which state he was on admission. There was left hemiplegia; the leg was flaccid, the knee-jerk was absent, and Babinski's sign was obtained. On the right the knee-jerk was also absent but Babinski's sign was not obtained. In both arms some contracture was present. There were conjugate deviation to the right and paralysis of the left side of the face. The temperature was 101·5° and the pulse was 60. The urine did not contain albumin. Lumbar puncture yielded very sanguineous cerebro-spinal fluid which rapidly escaped in drops. It contained red corpuscles, neutrophile polynuclears, some lymphocytes, and some large mononuclears. Abundant cerebral hæmorrhage involving the ventricles was diagnosed. During the night the patient uttered cries and incoherent words. On the 14th he opened his eyes and answered simple questions and the conjugate deviation had almost disappeared. He could move the leg but Babinski's sign persisted. Recovery gradually took place. On the 16th lumbar puncture yielded an orange fluid which on centrifugalisation yielded much less deposit than that previously obtained. On the 18th he could walk but there was still a little facial paralysis and the knee-jerks were absent. In similar cases observed by M. Letulle and M. Lemierre the termination was always fatal although the cerebro-spinal fluid was less sanguineous. The favourable course of this case caused them to alter the diagnosis to that of meningeal hæmorrhage which they thought must have been considerable. The deposit from the cerebro-spinal fluid was much greater than that in the first case. They were of opinion that the lumbar puncture assisted recovery by relieving pressure. The conjugate deviation is noteworthy, for it is rare in meningeal hæmorrhage. It may be suggested that the blood in the cerebro-spinal fluid was due to accidental wounding of a vessel in performing lumbar puncture but this was excluded by the fact that the fluid did not yield clot on standing.

"A MINT IN THE SEA."

WE suggested (correctly as it proves), more than eight years ago, that the announcement that definite quantities of gold had been recovered from sea water would be sure to attract the attention of speculators. The fact that sea water contained gold was first made patent, we believe, by the observation that the deposit on the copper plating of jetty piles in sea harbours was comparatively rich in the precious metal. In an annotation in THE LANCET of Oct. 10th, 1896, p. 1024, under the heading of "A Mint in the Sea," we drew attention to these observations and discussed the possibilities of treating sea water with the view of recovering what must be a vast amount of gold dissolved in it. On the estimate that a ton of sea-water contains approximately one grain the yield would amount to something like 200 tons of gold per cubic mile and as the volume of the world's ocean is estimated at 400,000,000 cubic miles the total possible yield of gold would be no less than 100,000,000,000 tons—a truly attractive prospect to the company promoter. We now learn that a serious attempt is to be made to wrest a proportion, at any rate, of this vast wealth from the sea and that a company is about to start the necessary machinery and plant somewhere on the south coast of England. It should be borne in mind, however, that the original observations as to the sea containing gold were made on the waters which wash the shores of a gold-bearing country—namely, New South Wales. Still, time no doubt suffices to effect a uniform distribution of the mineral salts of the sea, although the composition of sea-water varies with the locality from which it is taken. We should have thought that an eminently practical experiment in this direction would before now have been undertaken by the great steamship companies. Most steamships are equipped with an electric installation and it would be quite an easy matter for them to start a system of electro-plating while at sea without interfering seriously with the progress of the ship. A couple of large copper plates suspended in the sea and connected with the dynamos would serve as electrodes and collect the gold contained in the sea-water during the voyage. At the end of the voyage the plates could be examined for gold and some idea of the practicability of recovering the metal would be gained. If it proved that the steamship companies could add to their equipment an effective electrical gold dredger they might possibly be induced to cheapen the passenger rates according to the success of the system.

IMMUNISATION AGAINST ANTHRAX BY THE USE OF VIRULENT CULTURE.

Mr. J. A. Gilruth, M.R.C.V.S., chief veterinarian and bacteriologist of the New Zealand Government, has made some interesting experiments in guinea-pigs, rabbits, sheep, and pigs to test their immunisation against the bacillus of anthrax when it is inoculated in the body after being mixed with certain other organisms. The experiments were suggested by the observation of peculiar symptoms exhibited by a guinea-pig after inoculation with a small quantity of blood from an animal dead of anthrax, this blood having been accidentally contaminated by another organism during inoculation. As is well known, a guinea-pig or rabbit inoculated even with a small quantity of pure anthrax culture dies within from 24 to 48 hours with comparatively no premonitory symptoms and with no evidence of inflammation at the seat of inoculation. In this particular case, however, there was around the region of inoculation for the first two days an intense inflammation which nevertheless produced no disturbance and had disappeared almost entirely on the fifth day after inoculation. The animal was, so far as could be observed, in the best of health, yet on the morning of the sixth day (exactly 140 hours after inoculation) death occurred. A post-mortem examination revealed a typical anthrax condition, the bacillus anthracis being readily demonstrated in enormous numbers in the spleen and other organs. Following up this observation Mr. Gilruth inoculated anthrax bacillus mixed with bacillus coli communis, with streptococcus from a case of human septicæmia, and with bacillus enteritidis (Gaertner) respectively in various proportions. In each case death due to anthrax was delayed much beyond the normal time and in some instances the animals recovered. One rabbit even received within six months five cubic centimetres of anthrax broth culture subcutaneously, half the quantity being injected in a state of purity within a period of nine weeks, thus showing that the mixture of other organisms with that of anthrax considerably delayed the death of the subject. From these and

control experiments Mr. Gilruth draws the following conclusions:—

1. Guinea-pigs, rabbits, and sheep can completely resist the inoculation of large doses of virulent anthrax bacilli, provided these organisms are mixed with a larger quantity of some other organisms which are non-pathogenic to these animals.
2. Death is frequently delayed very considerably when the organism mixed with the anthrax bacillus is possessed of small pathogenic properties.
3. The anthrax bacillus must be "mixed" with the other organism, for if they be injected under different parts of the skin no resistance results.
4. An animal which has suffered without absolute impunity the injection of a large dose of anthrax bacillus when mixed with a foreign organism may succumb later to a much smaller dose of anthrax bacillus of pure culture although generally some resistance is evidenced.
5. It was observed with rabbits and sheep which received repeated doses of both anthrax and Gaertner bacillus mixed together in increasing quantities that a certain amount of immunity to comparatively large doses of pure anthrax could be conferred.
6. If the subject is further investigated it may possibly afford a surer and more satisfactory manner of conferring immunity against anthrax, and possibly other diseases, than those now in vogue.

THE ROYAL COLLEGE OF PHYSICIANS OF LONDON.

THE lectures of the present year to be delivered before the Royal College of Physicians of London are as follows. The Milroy lectures will be given by Dr. T. M. Legge on March 7th, 9th, and 14th, the subject being Industrial Anthrax; the Goulstonian lectures will be given by Dr. W. C. Bosanquet on March 16th, 21st, and 23rd, the subject being Some Considerations on the Nature of Diabetes Mellitus; the Lumleian lectures will be given by Dr. W. H. Allchin on March 28th and 30th and April 4th, the subject being Some Aspects of Malnutrition; and the Oliver-Sharpey lecture will be given by Dr. Leonard E. Hill on April 6th, the subject being the Influence of Atmospheric Pressure on Man. The days of the week for the delivery of the lectures are Tuesdays and Thursdays. The hour of delivery is 5 P.M. at the Royal College of Physicians, Pall Mall East, S.W.

COFFEE AND SEWAGE.

A RATHER strange decision seems to have been arrived at in a case which was concluded at the Southwark police court on Jan. 24th after an adjournment from the preceding week. The application made by the chief sanitary inspector of the borough of Bermondsey was for the destruction of 60 tons of coffee salvaged from a ship which had been sunk in the Thames and the summons was taken out in order to prevent the berries from being dried and sold for human consumption. The evidence of Dr. R. K. Brown, medical officer of health of Bermondsey, of Dr. J. W. H. Eyre, and of Mr. Bodmer was to the effect that the coffee was moist, sodden, permeated with sewage, and unfit for food purposes. Although they admitted that the necessary roasting might modify the dangerous conditions they declined to say that the subsequent decoction would thereby be rendered a wholesome beverage. On the other side, Mr. Friswell of Great Tower-street said that he had drunk coffee made from the sewage-laden berries without untoward results. Dr. F. J. Smith also gave evidence that he was prepared to do the same but that he "would not do so for choice." The magistrate, Mr. C. Chapman, appears to have been satisfied that the usual roasting process was sufficient to render the coffee fit for the food of man and dismissed the application. If he could have ordered that the stuff when sold retail should be labelled "coffee and sewage," so that the purchaser would have the same choice in purchasing that the law gives him in the case of admixture with chicory, the matter might have passed without comment. Few, even when tempted by a cheaper price, would be likely to buy coffee if they knew that it had undergone soaking in the diluted products of the metropolitan drainage system, although the decision of the learned magistrate would seem to be a certificate that 60 tons possibly saturated in varying degrees will make a safe and wholesome drink for those who will partake of it. According to the *Standard* it now appears that Mr. Rose, at Southwark police court, refused to revoke his order for the destruction of the coffee in spite of Mr. Chapman holding with regard to a portion of it that it was fit for human consumption. If this be so we congratulate Mr. Rose on his attitude.

HEREDITARY TRANSMISSION OF SYPHILIS.

ABOUT two years ago Professor Matzenauer, in a paper read before a medical society at Vienna and published in the *Wiener Klinische Wochenschrift*, 1903, Nos. 7–13, stated that in his opinion a direct paternal transmission of syphilis to the offspring has not been proved. His principal conclusions may be summed up in three general propositions: first, "that the mother of a congenitally syphilitic infant is invariably herself the subject of syphilis, even when to all appearances healthy." The second is "that an inheritance of the disease through an infected ovum or spermatozoon—that is, hereditary transmission in the true sense of the word—has not been proved." The third proposition is the natural consequence of these—viz., that the infection of the offspring is in every case secondary and brought about by an infection from the mother by the channel of the placental circulation. If these be accepted it follows that what has been called *chez en retour*, that is, the infection of a healthy mother through the placental circulation by a syphilitic fœtus, the result of paternal infection, does not exist. From the outset these conclusions of Professor Matzenauer were vigorously attacked and a somewhat polemical discussion raged in certain German and Austrian papers for some time. A paper has been published in the *Munchener Medicinische Wochenschrift*, Nos. 49 and 50, 1904, by Dr. Jesionek of Munich, in which two cases of considerable interest are recorded and Professor Matzenauer's views are vigorously criticised. The first case was that of a girl, aged 18 years, admitted into hospital for an attack of gonorrhœa, the gonococci being repeatedly demonstrated in the discharge. Since the case was one brought in by the police and was being dealt with judicially very careful examination was repeatedly made by several observers for evidence of syphilitic affection but always with negative result. It soon became apparent that the patient was pregnant and about four months after the date of impregnation her general condition, which had previously been good, markedly deteriorated and about a month later she developed a typical severe syphilitic roseolous eruption. The patient had been in hospital during the whole of this time and no evidence could be found of any primary chancre or anything to point to infection while in hospital. Shortly afterwards general enlargement of lymphatic glands became manifest and the case progressed as an ordinary case of secondary syphilis. About two and a half months later—that is, about the middle of the eighth month of pregnancy—a dead fœtus 35 centimetres in length was born which showed appearances typical of congenital syphilis—viz., maceration, enlarged spleen, swelling and parenchymatous degeneration of the liver, general icterus, syphilitic osteochondritis, multiple hæmorrhages, and complete atelectasis. Dr. Jesionek considers it highly improbable that such advanced changes as were found in almost all the organs of the fœtus could have developed in the short space of two and a half months, and taking into consideration the history of the case comes to the conclusion that the case is one of *chez en retour* and that infection of the fœtus through the spermatozoon without direct infection of the mother is thus a possibility. He also brings forward another case in support of his contention that the spermatozoa may serve as

the infective agent in direct contradiction of Professor Matzenauer's dictum that the spermatozoa of a syphilitic man are not infective. The patient was a medical practitioner, aged 45 years, who acquired a primary chancre on one of his right fingers from attending a syphilitic woman in her confinement; this was followed by a typical rash and sore-throat. Treatment by mercurial inunction was adopted vigorously for four months, after which period no signs of syphilis were discoverable. Shortly afterwards the patient resumed conjugal relations with his wife who subsequently developed a chancre of the vagina followed by roseola and glandular enlargements. In this case Dr. Jesionek attributes the infection to the spermatozoa since no syphilitic lesions such as mucous patches or a rash could be found about the man. Although no generalisations can be made from two cases yet the very careful manner in which they have been observed and recorded demands that due attention shall be given to the conclusions to which they apparently point, and while we cannot on this evidence alone accept Dr. Jesionek's conclusions that the spermatozoa of a syphilitic man are directly infective and that paternal inheritance and *choc en retour* are both proved, yet the striking nature of the cases should lead to careful observation of others in the same manner by other observers and the paper forms a valuable addition to our knowledge of a controversial matter.

DINNER AND DISEASE.

IN an evening contemporary there recently appeared an admirable article by Mrs. Hugh Bell entitled "The Dietetics of Conversation." In it she protests against the perpetual references to health, disease, and the state of the "inside" which now form such a prominent topic of conversation. In her own words: "To have people sitting in one's drawing-room talking about their secretions seems to me repellent, not to say disgusting. It is bad enough to have each of their most trifling actions explained and justified by a symptom; but it is quite intolerable that each symptom should in its turn be explained and a name given to the particular form of acid or of inflammation to which it is due." Further on she says: "It is like poor people, whose favourite form of conversation is to offer to show you their 'bad leg'—a mysterious disease which will no doubt in due time work its way up into the drawing-rooms and the conversation of Belgravia." We quite agree with Mrs. Hugh Bell but we do not think that the style of conversation to which she objects is altogether a novelty. In chapter 41 of that storehouse of human psychology, "Vanity Fair," Thackeray refers to Lady Jane Crawley and Becky Sharp having one of those confidential medical conversations about the children which all mothers delight in. He continues, with a fine disregard of dates,[1] "Fifty years ago, and when the present writer, being an interesting little boy, was ordered out of the room with the ladies after dinner, I remember quite well that their talk was chiefly about their ailments." Again, in chapter 60, after an account of one of Joseph Sedley's dinner parties, we learn "Politics stepped in a short time after dessert when the ladies retired upstairs and talked about their complaints and their children." Nowadays, however, the talk about complaints is openly indulged in at the dinner-table by members of opposite sexes and in our opinion it is due in great part to that emancipation for which women have been crying out for so long and which now they have undoubtedly gained. Not only have we heard appendicitis discussed at the dinner-table but even intimate gynæcological complaints. It is true that London society is not yet so advanced as is fashionable society in Paris, for the records of a recent trial have shown that there an occasional entertainment is a biograph representation of the hostess or one of her friends undergoing an abdominal section. But it is too true that refinement and that old-fashioned virtue known as reserve have markedly decreased of late years. The arcana of feminine dress are exposed to all and sundry in every shop window, to say nothing of the advertisements in fashion papers, and although there is nothing immoral in underclothing or in conversation about appendicitis or curetting we cordially agree with Mrs. Hugh Bell that such matters are not fitting for ordinary social conversation.

[1] "Vanity Fair" was written in 1847-48 and Thackeray was born in 1811.

CEREBRAL HÆMORRHAGE IN CHILDREN.

IN another column we publish an interesting case of non-traumatic cerebral hæmorrhage in a child, aged ten years, recorded by Dr. Hugh Taylor. Cerebral hæmorrhage in children is certainly a rare disease but nevertheless it has to be borne in mind in ascertaining the cause of sudden or unforeseen death in young subjects. It may be meningeal or intra-arachnoid or into the substance of the brain, the first-named being the more common. Meningeal hæmorrhage is generally met with in children at the period of dentition. At this time congestive attacks may occur, including lesions of the parietal arachnoid which becomes vascular; the small vessels newly formed in the membranes may burst and sudden death follows. Whooping-cough may also be the cause of the hæmorrhage or severe purpura may bring it about. Thrombosis of the sinuses and the various abnormal conditions of the blood met with in the exanthemata are also occasional causes. Hæmorrhage into the substance of the brain seldom occurs in children; when it is found it has in most cases been secondary to ulcerative endocarditis and has been due to embolism. Very exceptionally the vessels in childhood present a condition of atheroma and cerebral hæmorrhage has resulted from the rupture of a vessel thus diseased. Congenital syphilis may also produce vascular lesions in the brain and elsewhere. Dr. Taylor states that in his case all the other organs were macroscopically quite healthy. Probably some disease of the blood-vessels of the brain was present which would only have been detected on microscopic examination.

INFLUENZA AND ENDOCARDITIS.

SINCE influenza has established itself as a permanent scourge in this country we have had only too frequent opportunities of observing the disturbing effects of its toxins upon the heart. The most common manifestations of this action are seen in the irregularities characteristic of the pulse in influenza; this may be frequent, infrequent or irregular, or may exhibit the special "instability" described by Huchard. These disturbances must in all probability be ascribed to the action of the poison of influenza upon the nervous apparatus of the heart. But actual inflammatory affections of the organ may also occur and both pericarditis and endocarditis are sometimes met with, though they are comparatively rare. A case of the latter affection has recently been recorded by Dr. Pedro Escudero in a communication made to the Argentine Medical Society.[1] The patient was a boy, aged 13 years, who went through an attack of influenza complicated by pneumonia affecting both lungs in succession. The pneumonia resolved satisfactorily but a relapse of fever occurred, accompanied this time by the appearance of a systolic murmur at the apex of the heart, conducted into the axilla. This persisted after convalescence and apparently pointed to an organic valvular lesion. There is some doubt as to-

[1] "Endocarditis Grippale," Argentina Medica, Nov. 19th, 1904.

whether the inflammatory complications of influenza are due to the virus of the disease or to intercurrent infection by pyogenic organisms. In a case in which abscesses were found after death in the myocardium the bacteria present in these lesions were found to be streptococci (Lenhartz). It is not improbable that the pericardial and endocardial affections which accompany influenza, and perhaps those seen in other specific fevers, are similarly produced, the original infection lowering the patient's resistance to micrococcal invasion.

THE ROYAL COLLEGE OF SURGEONS OF ENGLAND: LECTURES FOR 1905.

THE course of lectures for 1905 is announced by the Royal College of Surgeons of England as follows: Feb. 14th, Mr. John Tweedy, F.R.C.S., Hunterian Oration, at 4 P.M.; Erasmus Wilson lectures on Peritonitis, by Mr. Leonard S. Dudgeon, on Feb. 20th and 22nd, and on the 24th by Mr. Percy W. G. Sargent; Hunterian lectures on the Changes produced by Inflammation in the Conjunctiva, by Mr. M. Stephen Mayou, on Feb. 27th and March 1st and 3rd; on the Physiology and Treatment of Surgical Shock and Collapse, by Mr. J. P. L. Mummery, on March 6th, 8th, and 10th; on the Dissemination of Mammary Carcinoma, by Dr. W. S. Handley, on March 13th, 15th, and 17th; on Congenital Hypertrophic Stenosis of the Pylorus and some other Rarer Disorders of Children, by Mr. Clinton T. Dent, on March 20th, 22nd, and 24th; and the Arris and Gale lectures on the Anatomy, Physiology, Pathology, and Surgery of the Gasserian Ganglion, by Mr. Donald J. Armour, on March 27th, 29th, and 31st. All the lectures other than the Hunterian Oration will be given at 5 P.M.

THE PREMATURE DEMENTIA OF ADOLESCENTS.

THIS form of insanity, well known to alienists as dementia præcox, seems to be increasing in France. In the presidential address, delivered by Dr. Robert Jones of Claybury in the section on Psychological Medicine at the meeting of the British Medical Association at Swansea in 1903, attention was drawn to the gravity of this class of cases and to its increase at Claybury and other asylums. In the *Journal de Neurologie* of Jan. 5th Dr. Marandon de Montyel, superintendent of the Ville-Evrard Asylum, deals with French cases. While differing from Kraepelin as to nomenclature, Dr. de Montyel points out that as regards prognosis such cases are grave. Dr. Christian of Charenton has described dementia præcox in a memoir published in 1899, and his statistics of curability are very low and discouraging. Both Dr. de Montyel and Dr. Christian among alienists of the older school agree in their results as to prognosis. The figures are further confirmed by a recent investigation of Dr. Sérieux of Paris, cited by Dr. de Montyel. They are to the effect that of the hebephrenic form of adolescent insanity one patient out of 12 recovered, and in the katatonic form one out of eight recovered. The recovery rate for both these forms is 1 in 10. The presence of a hereditary taint of insanity or grave neuroses in the ancestry of these patients is now widely recognised. The collected observations of Dr. de Montyel, Dr. Kraepelin, Dr. Sérieux, and Dr. Deny show that 70 per cent. of cases have their outbreak before the age of 25 years and that a few cases (especially of katatonia in young married women) occur between the age of 25 and 30 years. The breakdown in this later group of cases is probably due to troubles of married life. Three criteria are laid down for the diagnosis of this disease: first, the dementia is primitive—i.e., the mental deterioration is the initial symptom, the failure of the brain to respond to the rapid developmental needs of puberty and adolescence is like that of a tree growing in a limited area of soil which has become barren and exhausted, when the tree must decay; secondly, dementia præcox affects the three functions of emotion, intelligence, and volition, the deterioration of the moral character being the first noticeable, while both intelligence and volition are the next earliest symptoms; and thirdly, it is the elective insanity of puberty and adolescence. The curious fact has been noticed that in childhood and up to the age of puberty many of the victims of dementia præcox have shown signs of intellectual ability and even some brilliance but the brain is readily exhausted as the profound bodily and mental changes of puberty and adolescence set in and dementia follows, a contrast to a life of early promise.

"CLIMATOTHERAPY AND URBAN HYGIENE."

THE Second French Congress of Climatotherapy and Urban Hygiene will be held from April 24th to 28th at Arcachon, 34 miles south-west of Bordeaux, and will close at Pau in the Basses Pyrénées on April 29th. The President will be Dr. Renaut of Lyons. The organising committee's headquarters are at Arcachon and Dr. A. Festal, the general secretary, whose address is Villa David, and Dr. Dechamp, general treasurer, whose address is Villa Tibur, will respectively furnish information and receive subscriptions. The railway companies will grant members of the Congress and their wives and children travelling with them a reduction of 50 per cent. on the price of tickets to Arcachon, Biarritz, and Pau available during the last fortnight of April. Excursions will be made in the bay and in the forest of Arcachon as well as in the Bearn and Basque countries. A detailed programme of the work before the Congress and the regulations to be observed, together with a list of the excursions, will be published shortly and sent to all medical men applying for them. Particulars of the subjects to be discussed will be sent to members of the Congress at least ten days before the opening day in order to give to every member an opportunity of familiarising himself with the topics to be brought forward and in this connexion all those who desire to make communications to the Congress are requested to send the titles of their papers and concise summaries thereof to the general secretary before March 20th.

THE medical officer of health of the Cape Colony reports that for the week ending Dec. 31st, 1904, the conditions as regards plague in the colony were as follows: 7 cases of plague were discovered at East London in human beings during the week, 2 of them being European females. In the Cape Town district, including the shipping and the harbour, 719 rodents were examined, but no plague infection was found. Of the 167 rodents examined at Port Elizabeth and East London 5 proved to be plague-infected. For the week ending Jan. 7th, 1905, he reports that 2 cases of plague were discovered, both in natives, one at Port Elizabeth and the other at East London. In the Cape Town district, including the shipping and harbour, 876 rodents were examined but no plague infection was found. Of the 186 rodents examined at Port Elizabeth and 35 rodents and 3 cats examined at East London, 3 rodents and 1 cat proved to be plague-infected. As regards the Mauritius a telegram from the Governor received at the Colonial Office on Jan. 27th states that for the week ending Jan. 26th there were 8 cases of plague and 6 deaths from the disease.

THE inaugural dinner of the Association of Medical Diplomates of Scotland will be held at the Trocadéro Restaurant, Piccadilly-circus, London, W., on Feb. 14th, at 7.30 P.M. Mr. C. St. Aubyn-Farrer will preside. Tickets, price 10*s.* 6*d.*, exclusive of wine, may be obtained from

the honorary secretary, Dr. David Walsh, 18A, Hanover-street, London, W. All who hold the diploma of a Scotch college are invited to attend, whether they are members of the association or not.

AT a meeting of the Hospitals Association which will be held on Friday, March 3rd (by the permission of the council of the hospital), in the hall of Charing Cross Hospital, Mr. D. G. Mackintosh, medical superintendent of the Western Infirmary, Glasgow, will read a paper on the Control of Hospital Expenditure with Efficiency. Tickets of admission may be obtained on application to the honorary secretary of the association at 28, Southampton-street, Strand, W.C.

THE opening lecture of the winter session of 1905 at the Hospital for Consumption and Diseases of the Chest, Brompton, S.W., will be delivered by Dr. H. Batty Shaw on Wednesday, Feb. 8th, at 4 P.M., on the Selection of Cases of Tuberculosis of the Lungs suitable for Treatment by means of the Tuberculins and other Specific Agents. The lectures are free to all qualified medical practitioners and to students of medicine.

THE Lettsomian lectures of the Medical Society of London will be delivered by Dr. G. H. Savage on Feb. 6th and 20th and March 6th. The subject of the first lecture is Functional Mental Disorders; of the second lecture, Toxic Mental Disorders; and of the third, Mental Disorders of Decay. The lectures will be delivered at the rooms of the society, 11, Chandos-street, Cavendish-square, and they will commence at 9 P.M.

AN address on the Physical Advantages of Universal Naval and Military Training will be given by Lieutenant-Colonel O. T. Duke, until lately honorary secretary of the Lads' Drill Association, at the Caxton Hall, Westminster, at 5.30 P.M., on Tuesday, Feb. 7th; Sir William S. Church, Bart., will take the chair. Baron Suyematsu, late Minister of the Interior for Japan, will also speak.

THE annual general meeting of the Neurological Society of the United Kingdom will be held at 11, Chandos-street, London, W., on Thursday, Feb. 16th, at 8.30 P.M. Sir John Batty Tuke, M.P., will deliver the presidential address on the Relation of the Lunacy Laws to the Treatment of Insanity.

A GENERAL meeting of the Society for Psychical Research will be held at 20, Hanover-square, London, W., on Monday, Feb. 6th, at 8.30 P.M. Professor Charles Richet will deliver a presidential address.

THE ARMY MEDICAL SERVICE OF THE ARGENTINE REPUBLIC.

BY F. HOWARD, M.D. ST. AND.,
COLONEL, ARMY MEDICAL STAFF (RETIRED).

THE corps of military surgeons directs the sanitary service in the army, under the superior chief of the forces, holding plenary power and following the authorised procedures in normal and urgent cases under the orders of the commandant-in-chief. The sanitary service consists of surgeons, apothecaries, and veterinary officers and is divided into (*a*) the General Inspectorate; (*b*) the service in the different tactical units which form the army—viz., army corps, divisions, brigades, and regiments; and (*c*) service in the hospitals, ambulances, and military training establishments.

The General Inspectorate is comprised of the director of the sanitary corps and a board called "Inspecsion General," composed of the inspector-general, president; surgeons of the army, inspecting apothecary, and inspecting veterinarians, members; a surgeon acting as secretary. The inspector-general has under his orders the *personnel* of his office and is recognised as a general of brigade enjoying all corresponding honours, &c., of that rank. The duty of the inspector-general is to supervise the sanitary service of the whole army, to inquire into the complaints of military chiefs and surgeons, to give account of the results of special commissions of a technical nature whether medical or pharmaceutical, to disburse accounts, to keep a record of punishments, and to furnish annually to the military chief the works done by the sanitary corps. To the office of the inspector-general are allowed a secretary, an accountant, an assistant, two clerks, and one orderly.

In peace the service of the corps is worked by surgeons of corps, of regiments, of brigades, and divisions, and by apothecaries of the first and second class. In war the service is divided into administrative (direction) and executive. The former is in the hands of an army surgeon for each corps and surgeons of division, brigade, and regiment. The nursing orderlies perform their duties in peace and war in the form prescribed.

The surgeon of the army corps has under his immediate orders the sanitary *personnel*, hospitals, and ambulances allotted to each corps. In time of war the director of the sanitary service has authority over officers and men of the sanitary corps, submitting to the chief of the army his requirements for increase of *personnel* or *matériel*. He has the right of punishing officers serving under him and furnishing reports thereon. He has also the direction of the hospitals of aid societies. He is responsible to the commandant-in-chief of the army and to the inspector-general of the sanitary service. The surgeons of division direct the sanitary service of their respective divisions, having charge of the hospitals and ambulances. They are under the orders of the chief of the division and report all matters pertaining to sanitation, &c., to the inspector-general. They keep statistics of hospitals and carry out meteorological and climatic observations, studying the flora and fauna and geographical conditions of the locality in which they may serve. These divisional surgeons have the rank of lieutenant-colonel in the army and enjoy all the prerogatives of that rank. The surgeons of brigades rank as majors and are under the orders of the chief of the brigade. The brigade hospitals and ambulances and the *personnel* and *matériel* are under their orders. The surgeons of regiments have the rank of captains. They have charge of the nursing department of the army, instructing nurses and bearers, vaccinating the troops, and supervising *personnel* and *matériel*. The younger surgeons rank is that of first lieutenant. The duty of these officers consists of daily inspection of the sick, inspection of the food-supply and cooking, investigation of the water-supply, and sanitation generally. Each regiment has one medical officer, one apothecary, and one sick attendant, and arrangements exist to permit of a great number of sick being treated without going to hospital.

The apothecary corps has for its *personnel* one inspecting apothecary, one principal apothecary of the army, and apothecaries of the first and second class. They enjoy prerogatives of rank the same as surgeons. They are responsible for the upkeep of pharmaceutical and chemical stores, for compounding prescriptions, &c. The inspecting apothecary is the chief of his branch under the inspector-general of the Sanitary Service. The principal apothecary of the army is the second head. The apothecaries assist generally in the hospitals and infirmaries in peace, and in war in the camp hospitals and ambulances. The veterinarians have the care of all animals and, in particular, horses. The nursing orderlies serving under the surgeons are divided into first-class, sergeants; second-class, corporals; and third-class, privates.

The *personnel* of each hospital consists of (*a*) a medical officer, director; (*b*) surgeons, apothecaries, and assistants; (*c*) one nursing orderly for 12 sick, when there are sisters of charity, with power to increase the number; and (*d*) servants (civil) who assist the medical staff. The direction of the military hospital in the capital is in the hands of an army surgeon. The administration of military hospitals is under the immediate supervision of the General Inspection Board, to which allusion has already been made in the beginning of this article.

The central laboratory and drug stores are likewise under the superintendence of the General Inspection Board, while

the director is the apothecary inspector, the sub-director the principal apothecary, the further *personnel* being two apothecaries, first class, and two assistant apothecaries. The subordinate staff is fixed by the director who supervises the drugs and laboratory, keeps records of purchases and disbursements and current accounts with each hospital, informs the General Inspection Board of requirements, nominates employés, removes those unfit, and finally submits a monthly and an annual report of all going on under his direction. The sub-director personally superintends the work in the laboratories; he keeps books, in one of which he notes the dates of all the preparations made, in another the outgoings, and in a third, with counterfoils, all articles disbursed at the central drug store. He has charge of the meteorological observations, teaches the army apothecaries analytical work, and is responsible for the contents of the laboratory, reporting monthly and annually to the director all matters connected with it. There is a so-called "surgical arsenal" where all instruments, remedies, disinfectants, and all necessaries for the operating room are kept. There is a central depôt of articles for hospital use and sanitary war *matériel*. The administrative officials are divided into cashier, official accountant, and storekeeper, with their attendants, servants, and others.

Military Medical School.—A decree of the President of the Argentine Republic, dated May 24th, 1902, created a military medical school for the theoretical and practical instruction of students of the faculty of the Republic who may desire to be surgeons, apothecaries, and veterinarians in the army. This school is dependent on the General Inspection Board (of Health) of the Army and is under the care of an army surgeon as chief and director of studies. There are certain conditions as to the selection of students but this fact has to be noted particularly—viz., that the entire expense from the entry of the students into the school to the end of the course is defrayed by the State. The number of students is fixed annually and depends on service requirements. It is needless to go into details as to the plan of studies for the different classes of students, suffice it to say it embraces military surgery, pathology, chemistry, bacteriology, hygiene, and so on. The two most distinguished students are entitled to a journey to Europe for one year to complete their studies at Government expense. Students who fail to give satisfaction are discharged, without power to return, and are subject to the condition of having to serve as soldiers. The professors at the school are surgeons, apothecaries, and veterinary surgeons of the army. The *personnel* of the school is composed of a chief and director of studies, professors, tutors, and assistants. The monthly emoluments over and above salaries (in the case of professors) are as follows. (The Argentine dollar may be roughly taken as 1*s.* 10*d.* of our money.)

Chief and Director	$150
Professors of surgery, medicine, pathology, bacteriology, hygiene, and medico-legal subjects ...	$100 each.
Professors of pharmacy and veterinary medicine and surgery	$80 ,,
Medical students of sixth and seventh years	$40 ,,
,, ,, of fifth, fourth, and third years ...	$30 ,,
Veterinary students	$25 ,,
Apothecary students	$20 ,,

The Central Military Hospital.—The military authorities have created as a crowning point of their army medical organisation the central military hospital at Buenos Ayres, which is described as a splendid establishment and undoubtedly the first of its kind in South America. It was completed in 1888 at a cost, including site and building, of upwards of $1,000,000 of the national currency. The description of it would require several columns. Sufficient to say that there are complete installations for hydrotherapy and massage, anatomical, chemical, bacteriological, and radiographical, &c., services. It is completely surrounded by lines and cross-lines of electricity and drainage connecting it with the arsenal of war and the other municipal hospitals. For complete information I refer readers to the *Anales de Sanidad Militar* for May, 1903, published at Buenos Ayres.

ROYAL EAR HOSPITAL, SOHO.—Lectures which are free to medical practitioners are given at this hospital in Dean-street, Soho, every Thursday at 5 o'clock. Further particulars may be obtained from Mr. P. Macleod Yearsley, honorary secretary of the medical board.

TWELFTH ANNUAL REPORT (FOR 1903) OF THE MEDICAL OFFICER OF HEALTH OF THE ADMINISTRATIVE COUNTY OF LONDON.

(*Concluded from p. 243.*)

IT is matter for regret that limitations of space preclude our commenting in THE LANCET on Sir Shirley F. Murphy's statistics regarding several diseases other than those which we have already noticed but which are of considerable importance from a preventive point of view. The diseases known as erysipelas, puerperal fever, influenza, and pneumonia, which annually destroy many lives, are carefully passed in review in the report, especially with regard to their several rates of incidence or of fatality and the relation thereto of locality, age, and sex, but for detailed information concerning these diseases reference must be made to the report itself. With respect, however, to two of the diseases not previously noticed—pulmonary tuberculosis and cancer—our readers will naturally expect some comment, for these diseases are responsible for a large portion of the total mortality in the metropolis. In regard to the fatality from pulmonary tuberculosis in London we are informed that from the earliest years respecting which trustworthy information exists there has been a steady decline similar to that obtaining in most other parts of England. During the ten years 1851-60 this disease was fatal in London to 286 out of every 100,000 persons living, but in 1903 the proportion had fallen to 160 in the same number living. Quite exceptionally, as far as we know, the deaths occurring in public institutions in, or belonging to, London have been distributed to the areas from which the patients originally came; it is, therefore, practicable to compare the metropolitan boroughs with respect to their death-rates. In the present report a table appears giving these rates after correction by the use of appropriate factors, the latter being calculated by applying the population of the metropolitan boroughs severally to the general London rates at each age and of each sex in the five years 1897-1901. The table shows that in proportion to population pulmonary tuberculosis was most fatal in the metropolitan borough of Holborn where the mortality was in excess of the mean rate by 78 per cent.; it was least fatal in Hampstead where the proportion did not exceed 47 per cent. of the mean. The first and last quarters of the year constitute the period of highest fatality from this disease, the second and third quarters being relatively less fatal.

The system of voluntary notification of pulmonary tuberculosis has been adopted by more than half of the metropolitan boroughs, the council of the borough of Holborn, which at present suffers exceptionally from that disease, having decided in the course of 1903 to adopt this measure for limiting its spread. Among other measures complementary to notification careful inquiries are made by the several authorities into the supposed source of infection and into the family history of the patient. These measures are, of course, supplementary to the ordinary methods of sanitation and their success will depend on the degree in which they are regarded as such rather than as substitutes for such elementary but essential precautions. In the course of 1903 the by-law of the London County Council having for its object the prevention of infection by tubercle came into force. This by-law provides that "no person shall spit on the floor, side, or wall of any public carriage or any public hall, public waiting-room, or place of public entertainment, whether admission thereto be obtained upon payment or not." The penalty attaching to breach of this by-law is 40*s.* and it is important to note that the enforcement of this penalty can be secured by anyone who has witnessed the practice against which the by-law is directed. The words "any public carriage" include a railway carriage.

With reference to cancer we learn from the report that owing to changes of area in the sanitary districts of London effected by the London Government Act of 1899 the death-rates since 1900 are the only ones available for comparative purposes. We find, however, on reference to Dr. Tatham's decennial supplement that in the years 1881-90 London occupied among English counties the highest position in the scale of cancer fatality, and this after making the fullest allowance for age and sex differences of the populations.

Sir Shirley Murphy's figures show that the London deaths from cancer are still increasing in number, the mortality in the last three years having been equal to 93, 99, and 102 respectively in each 100,000 persons living. An interesting table appears in the report showing the incidence of cancer mortality on the several metropolitan boroughs since 1900, the rates having been corrected as far as possible by distributing to the areas in which the patients had previously resided the deaths from cancer occurring in public institutions belonging to London. The experience of only three years is perhaps too limited to justify other than very general conclusions on this point, added to which the comparative mortality figures in the last two columns of the table show considerable discrepancies. But if the figures are to be trusted they show that the boroughs of Marylebone and Hampstead sustained the greatest loss of life by cancer in 1903 and the borough of Greenwich the least.

In the second part of his report Sir Shirley Murphy discusses several matters relative to the administrative work of his department during the year 1903. Constant and careful supervision has, as in previous years, been maintained with regard to the prevalence of nuisances and to the regulation of offensive businesses and of common lodging houses.

Under the Housing of the Working Classes Act several representations have been made and schemes undertaken, either by the County Council on its own initiative or by the borough councils with the County Council's approval, under Parts I., II., and III. of that Act, the details of which, both as regards the demolition of property unfit for human habitation and as regards the erection of new dwellings, are fully given in the report. The administration of the Factory and Work-shops Act has received due attention at the hands of the public health department and so likewise have the inspection of food and drink and the regulation of night shelters, mortuaries, and disinfecting stations.

We are deeply interested in Sir Shirley Murphy's remarks concerning the London water-supply the general supervision of which, both as regards its sources and its purity, will, it is hoped, be brought into much closer relation than at present with the public health department of the County Council. The serious warnings of Dr. T. E. Thorpe, the official water examiner, as regards the necessity for further precautions in the filtration, the storage, and the distribution of drinking water are of vital importance to the vast population which depends for its very existence on its purity and quantitative sufficiency. We trust that his weighty words respecting the condition of the water-supply and the floods in the Thames Valley in June and October respectively will receive the attention which their great importance demands.

Turning now to the appendices, which occupy almost half of the medical officer's report, we note that Dr. W. H. Hamer's report on the prevalence of enteric fever in London is there reprinted. This interesting document, which we reviewed fully in THE LANCET of July 23rd, 1904, p. 233, connects the spread of enteric fever with the eating of imperfectly cleansed and insufficiently fried fish in certain extensive districts of the metropolis. Sir Shirley Murphy does well to keep this important topic constantly before the authorities concerned, for fried fish is very largely consumed in many of the poorer districts of London as the chief article of food, and Dr. Hamer has abundantly shown that little care is ordinarily devoted to its preparation for that purpose. The second appendix contains a report by Dr. C. W. F. Young, the recently appointed county medical officer of health of Middlesex, with respect to the sanitary appointments of the tenement dwellings of London. In the course of 1903 Dr. Young inspected a large number of houses which now consist of several tenements but which had evidently been intended for the accommodation of single families, in order to ascertain how far dwellings thus subdivided could be held to comply with the necessary requirements of health and with the County Council's by-laws relating thereto. In the majority of premises visited the houses were found practically in the same condition as when occupied by one family, except in so far as relates to water-closet accommodation which has been increased in order to comply after a fashion with the minimum regulations of the County Council made under the London Public Health Act. Even in the important matter of water-supply no alteration has been made on a scale sufficient for the requirements of the inmates of sublet houses. The only available water tap appears to be placed usually in the backyard or in the washhouse on the ground or basement floors. The result of these inconveniences is that drinking water is often stored in receptacles within each tenement and that waste water and household slops, which ought speedily to be removed, are also there retained, thus seriously endangering the wholesomeness of the dwellings. The report gives an account of an inquiry as to the accommodation provided in the ordinary tenement house for the cooking of food and this Dr. Young finds to be generally unsatisfactory. In at least one-third of between 700 and 800 tenements inspected in the course of the year no oven existed in which food could be cooked, the fire-grate being the same as that provided when the house was originally built and not better adapted than an ordinary bedroom grate for cooking purposes. In a certain proportion of tenements gas stoves were supplied for cooking purposes but these were fitted with so little care that Dr. Young states that no provision whatever had been made for carrying off the products of combustion. For hot water the tenants have ordinarily to depend on the use of a kettle. In a small number of instances a boiler was found in connexion with the fire-grate but almost invariably this was defective and out of use. In the tenements visited no special provision existed for the storage either of food or of fuel. In Dr. Young's opinion the conditions chiefly calling for remedy are the provision of a more accessible water-supply for each tenement and the construction of a suitable place for each tenement in which food can be properly kept. It is questionable whether in addition each tenement should not be provided with a cooking stove. This, however, is not insisted on in all cases for the reason that cooked food is frequently purchased at cookshops in the poorer neighbourhoods so that the provision of this convenience cannot be urged with the same force as in the case of water-supply and storage of food.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

A COMITIA was held on Jan. 26th, Sir WILLIAM SELBY CHURCH, Bart., K.C.B., the President, being in the chair.

The PRESIDENT announced that the subject of the Bradshaw lecture, to be delivered by Dr. G. R. Murray, would be Exophthalmic Goitre.

The following gentlemen having passed the required examination were elected as Members of the College: Henry Willoughby Gardner, M.D. Lond., L.R.C.P. Lond.; Charles John Nepean Longridge, M.D. Vict., L.R.C.P. Lond; and William Henry Willcox, M.D. Lond.

Licences to practise physic were granted to 101 gentlemen who had passed the required examination.

Diplomas in Public Health were granted jointly with the Royal College of Surgeons of England to the following gentlemen:—Arthur Reginald Bankart, M.B., C.M. Edin.; John Cullen, M.D., Ch.B. Glasg.; George Alfred Edsell, M.D. Durh., L.R.C.P. Lond., M.R.C.S. Eng., L.S.A.; William Lloyd Edwards, L.R.C.P. Lond., M.R.C.S. Eng.; Edward Haines, L.R.C.P. Lond., M.R.C.S. Eng.; Oswald Horrocks, L.M. & S. Madras, L.R.C.P., F.R.C.S. Edin.; Major Oliver Richard Archer Julian, R.A.M.C., L.R.C.P. Lond., M.R.C.S. Eng., L.S.A.; Surgeon-Major Charles Randolph Kilkelly, M.B., B.Ch. Dub., L.R.C.S. Irel.; Frederick Norton Menzies, M.D., B.S. Edin., M.R.C.P. Edin.; Robert Macfarlane Mitchell, M.B., Ch.B. Edin., F.R.C.S. Edin.; Captain Arthur Hugh Morris, R.A.M.C., L.R.C.P. Lond., M.R.C.S. Eng.; Major Albert Pearse, R.A.M.C., L.R.C.P. Lond., M.R.C.S. Eng.; John Richards, L.R.C.P. Lond., M.R.C.S. Eng.; Frank Edward Scrase, F.R.C.S. Eng., L.R.C.P. Lond.; Harold Weightman Sinclair, M.D. Lond., L.R.C.P. Lond., M.R.C.S. Eng.; Robert Small, L.R.C.P. Lond., M.R.C.S. Eng.; and Frederick Robert Elliston Wright, M.B. Lond., L.R.C.P. Lond., M.R.C.S. Eng.

The PRESIDENT announced that Dr. W. Heaton Hamer had been appointed as Milroy Lecturer for 1906.

The following communications were received: 1. From the secretary of Queen Victoria's Jubilee Institute for Nurses asking the College to nominate a representative for a term of three years from the end of February next in place of Sir Dyce Duckworth who retires by rotation but is eligible for re-election. Sir Dyce Duckworth was unanimously re-elected. 2. From the secretary of the Royal

College of Surgeons of England reporting certain proceedings of their Council. 3. From Colonel C. W. Long, M.P. (chairman of an association formed in 1903), moving the College to memorialise the Government to give effect to recommendation 50 of the Inter-Departmental Committee on Physical Deterioration by appointing a commission of inquiry into the prevalence and effects of syphilis on the national health. The matter was referred to the Council of the College for consideration and report.

The following Fellows were elected to serve on the Council: Dr. Thomas Buzzard, Dr. J. Watt Black, Dr. T. Clifford Allbutt, Dr. W. Hale White, and Dr. R. Percy Smith.

Dr. F. de Havilland Hall was elected a member of the finance committee until July, 1906, in place of Sir Isambard Owen who has resigned.

The PRESIDENT drew attention to a fine portrait of Harvey which had been offered to the College and it was resolved to purchase it and to add it to the collection of portraits already in the possession of the College.

The quarterly report of the College finance committee, dated Jan. 12th, was received and adopted.

A report was received from the committee of management dated Dec. 5th, 1904, recommending that the Liverpool Stanley Hospital should be added to the list of general hospitals recognised by the Examining Board of England, and that the Municipal College, Grimsby, should be added to the list of institutions recognised by the Examining Board in England for instruction in chemistry, physics, and practical chemistry. The report was adopted.

A report from the laboratories committee dated Dec. 2nd, 1904, was received and adopted.

A list of books and other publications presented to the library during the past quarter was received and the thanks of the College were ordered to be returned to the donors.

The PRESIDENT then dissolved the Comitia.

MEDICINE AND THE LAW.

The Name "Benedictine."

A MOTION was heard by Mr. Justice Buckley recently for an injunction forbidding a Welsh company from applying the name "Benedictine" to a liqueur of their manufacture. The party complaining was the Société Anonyme de la Distillerie de la Liqueur Bénédictine de l'Abbaye Fécamp, and the evidence on its behalf was to the effect that the word "Benedictine" was generally understood in the wine trade to mean their liqueur and no other. This is so much the case that it is a little surprising to find the learned judge dismissing the application as "ridiculous," a somewhat strong term to apply when a business firm finds its well-known product imitated and the imitation sold under the name which the original firm has made famous. The evidence, however, showed that the liqueur of the defendants although sold in bottles which themselves to some extent were imitations, was accompanied by labels and advertised by circulars which with complete candour proclaimed that it was made in Great Britain, and which boasted that the secret of the Abbaye Fécamp had been discovered by the British firm who used identical materials. This, of course, is not a representation that the new liqueur is made abroad by the foreigner. No evidence was given as to the actual composition of the two liqueurs and Mr. Justice Buckley's decision was simply on the question of the name. It proceeded on the assumption that the claims of resemblance between the two liqueurs were justified in fact. No doubt, it would not be held that a man had the right to sell an altogether inferior article and a mere imitation by boasting that it was precisely similar to another of recognised merit. To do this would be to damage the reputation of the latter by means of a misrepresentation.

Arsenic on Easy Terms.

Arsenic has figured as the instrument of death in so many famous crimes and has so often been detected in these only through a repetition of its use or some chance circumstance that it is safe to conclude that in other instances human life has been taken by its means without the murder being brought home to the assassin. That it may be taken accidentally must also be remembered in considering a prosecution by the Pharmaceutical Society which led to the conviction and fining of William Andrews, a ratcatcher, at Stratford on Jan. 27th. An inspector of the Pharmaceutical Society had written to the defendant inclosing a postal order for 3*s*. 6*d*. and asking for "Hammond's Remedy for Rat Killing." In return he received a cake, apparently of meal, which upon analysis was found to weigh four ounces and to contain one and a half ounces of arsenic. The bench declined to accept the excuse that the defendant was ignorant of the law—a defence which the common law of England does not recognise—and fined him £2 with 4*s*. costs. Regulations for the sale of patent medicines such as those referred to in THE LANCET of Jan. 28th, p. 241, as having been introduced in New Zealand would presumably include such articles as "Hammond's Remedy for Rat Killing" and would assist in the suppression of a dangerous traffic the disappearance of which none would regret, even if it involved pecuniary loss to ratcatchers.

COCOA CHEMICALLY AND PHYSIOLOGICALLY CONSIDERED.

II.[1]

IN the previous article it was shown that there are practically two classes of cocoa in the English market—one which after fermentation is simply roasted, ground, and the fat expressed and another in which in addition to the above the natural salts are increased. The cocoas of the former class commonly exhibit an acid reaction and those of the latter class either a neutral reaction or a slightly alkaline one due not to free alkali but to the presence of alkaline salts. As these different methods of manufacture are calculated to modify the properties and the composition of the cocoa which may affect its value as a food and a beverage it is interesting to determine how far this is so. We therefore instituted a series of experiments directed to ascertain, first, the *real* solubility of the cocoas in boiling water and the amount and the nature of the soluble constituents; secondly, the *apparent* solubility of the cocoas judged from the amount of material subsiding from the infusion; thirdly, the digestibility of the two classes of cocoa in artificial gastric and pancreatic juice; and fourthly, the action of acids and alkali in the absence of ferment.

For the purpose of these experiments Cadbury's cocoa was taken as a type of one method of manufacture and Van Houten's cocoa as a type of the other, while Plasmon cocoa was included in the investigation as representing a cocoa containing added matter (plasmon or dried milk proteid).

In determining the real solubility of the cocoa in boiling water the directions contained upon the respective labels were strictly followed in making the infusion. The results below relate to the total dissolved matters, the mineral matter, organic matters, and proteid dissolved. The amount of proteid dissolved was arrived at by determining the amount of nitrogen in the undissolved residue and deducting this from the total amount of nitrogen present as proteid in the cocoa.

Cocoa.	Total dissolved matters. Per cent.	Mineral matters. Per cent.	Organic matters. Per cent.	Proteid. Per cent.
Cadbury's ...	19·80	3·20	16·60	5·90
Van Houten's...	23·00	5·20	17·80	10·55
Plasmon cocoa	50·40	5·00	45·40	38·21

Plasmon cocoa consists approximately of 60 parts of plasmon and 40 parts of cocoa, the latter belonging to the class of cocoas which are either neutral or slightly alkaline in reaction. The high percentage of soluble matters and of soluble proteid, therefore, in this cocoa is due to added proteid. The solubility of the proteids of cocoa is evidently influenced by the method of manufacture, as we should expect. Thus it is very decidedly increased in Van Houten's cocoa in which the natural alkaline salts are increased, while Cadbury's cocoa showing an acid reaction yields distinctly less proteid to hot water. It should be remarked, however, that the real solubility of cocoa must depend also upon the degree to

[1] No. I. was published in THE LANCET of Jan. 7th, 1905, p. 47.

which the cocoa is reduced to powder. Van Houten's cocoa is exceedingly finely ground, in fact comminuted, and this must be an obvious factor in the case, for according to the fineness of the powder so will be the proportion of the nitrogenous and other principles freed from their environment. Van Houten's cocoa is practically an impalpable powder and the most finely ground that we have examined. While it yields about the same amount of organic matters to hot water as does Cadbury's yet the proportion of proteid dissolved is nearly twice as much. Summing up, Plasmon cocoa yields to boiling water 70 per cent. of its proteid, Van Houten's 60 per cent., and Cadbury's 33 per cent., the total proteid of the cocoas respectively being 54·43 per cent., 17·25 per cent., and 18·60 per cent.

By the *apparent* solubility of cocoa is meant the quantity of the cocoa which remains suspended in the infusion after a certain time. This will depend again upon the fineness of the powder, while obviously as the percentage of natural salts is increased the amount of matters kept in suspension will be greater. This is a matter of considerable importance not only from a dietetic point of view but from an economical one also. It follows that the use of cocoa which yields the greatest amount of sediment in a short time in the cup is very liable to be attended with waste, for sediment is as a rule rejected and it must contain some of the important food principles of the cocoa. Such waste, however, could, of course, be obviated by occasionally stirring the infusion or by thickening it with milk or even starch. It is clearly an advantage, however, when a cocoa yields a minimum amount of sediment in a reasonable time. The word "soluble" is used in this sense by manufacturers of cocoa.

One gramme of each cocoa was heated with boiling water and made up to 100 cubic centimetres in a graduated cylinder. The volume of sediment was read off after half an hour with the following results:—

Cadbury's	5·0	cubic centimetres.
Van Houten's... ...	1·0	,, ,,
Plasmon cocoa ...	3·0	,, ,,

It appears from these results that the *apparent* solubility of various cocoas differs widely. Thus Cadbury's cocoa and plasmon cocoa yield an abundance of sediment when treated with boiling water and allowed to stand, while Van Houten's cocoa yields very little sediment even after standing for some hours. In practice, a cup of cocoa would not be standing more than half an hour when intended for consumption. The actual proportion of cocoa consumed, however, is clearly dependent upon its degree of apparent solubility, the extent, in fact, to which the cocoa remains suspended. The presence of natural salts increases the apparent solubility, which is further enhanced when the fineness of the powder is extreme. There is thus an important economy in the use of a cocoa which gives a negligible quantity of sediment in the cup just as there would be in the use of a beef-tea which contained albuminous particles in such a fine state of division as to result in practically no sedimentation. The order of sedimentation beginning with the cocoa which gives the least is as follows: Van Houten, Plasmon, Cadbury. It is interesting to observe that Plasmon cocoa yields a comparatively large sediment, and further, this sediment contains a considerable proportion of plasmon or milk proteid. Since plasmon is regarded as a soluble form of milk proteid it would appear that when combined with cocoa, at any rate, its solubility is interfered with.

The next experiments relate to the behaviour of cocoa under the action of artificial gastric and pancreatic juice. The results are calculated to give some idea of the fate of cocoa in the body, though necessarily the action taking place *in vivo* would be more complete than that taking place *in vitro*. Nevertheless the experiments being carried out under precisely the same conditions the results may be said to have a comparative value. The activity of the ferments was first ascertained and, as a matter of fact, Benger's liquor pepticus and liquor pancreaticus were found to be most trustworthy for the purpose. The cocoa infusion in each instance was prepared in the manner directed by the makers—i.e., treated with boiling water and the infusion then brought to the normal temperature of the body (100° F.). A definite volume of digestive fluid was added and the whole mixture was kept for four hours at a constant temperature and occasionally stirred. In the case of gastric digestion the mixture was acidified with hydrochloric acid until of the acid strength of the gastric juice and in the pancreatic digestion the fluid was made alkaline with carbonate of sodium.

The following figures show the percentage amount of the total proteid hydrolysed by the gastric and pancreatic ferments respectively after four hours:—

	Gastric digestion.	Pancreatic digestion.	Undigested proteid.
Cadbury's... ...	40·45	31·40	28·15
Van Houten's ...	67·20	4·11	28·69
Plasmon cocoa...	37·50	56·20	6·30

The results are of particular interest in that they show that the two methods adopted in the preparation of cocoa determine the relative digestibility of the cocoa in one or other of the digestive juices. Thus Van Houten's cocoa proves to be readily digestible in the gastric juice, the bulk of the proteid yielding to that digestive agent. While Van Houten's cocoa readily yields 67·20 per cent. of its proteid to the hydrolysing action of gastric juice, Cadbury's similarly yields 40·45 per cent. On the other hand, in the pancreatic juice Cadbury's yields 31·40 per cent. more of its proteid and Van Houten's 4·11 per cent. In other words, the latter cocoa is much more quickly digestible than the former, although both are ultimately digested to about the same extent after the united action of artificial gastric and pancreatic juices so far as regards their proteid constituents. It should be pointed out that in these experiments *in vitro* the infusion was constantly stirred but in practice, as has been already mentioned, the amount of cocoa actually reaching the gastric and pancreatic juices in the body is not represented by the spoonful of cocoa placed in the cup. According to the kind of cocoa used a more or less varying proportion of cocoa is left as a sediment in the cup. To make, therefore, a really practical comparison the infusion in the cup should after a time be poured off the sediment and then be submitted to the action of the artificial digestive juices. The cocoas giving the least sediment would obviously give the most favourable result. The more finely divided, too, the particles of cocoa the more amenable is it likely to be to the action of digestive fluids, the proteids *inter alia* being unlocked, so to speak, by the process. The proportion of proteid digested as shown in the above table is based upon the following amounts originally present in the cocoas:—Cadbury, 18·60 per cent.; Van Houten, 17·25 per cent.; and Plasmon cocoa, 54·43 per cent. In the literature on this subject we find that the amount of proteid given by other observers is generally in excess of the truth, for the reason probably that the amount of proteid has been based on the total quantity of nitrogen found. Since, however, cocoa contains on an average 1·5 per cent. of theobromine (equal to 0·5 N) its equivalent of nitrogen should be deducted before calculating the proteid.

It has already been pointed out in regard to Plasmon cocoa that, in spite of statements as to the solubility of plasmon itself, the cocoa yields a relatively large sediment containing plasmon. This suggests that some constituent, possibly cocoa-red or tannin, interferes with the solubility of the proteid. However that may be, the same restraining effect appears in evidence in the experiments with artificial gastric juice, for, in spite of the very large proportion of proteid present in Plasmon cocoa, only 37·50 per cent. is digestible in gastric juice, as against 40·45 per cent. in Cadbury's cocoa and 67·20 per cent. in Van Houten's cocoa. The conclusion is suggested that, at any rate in gastric digestion, the natural proteids of cocoa resolve more easily than does dried milk proteid. Whatever restraining effect the constituents of cocoa may possess on the gastric solubility of dried milk proteid it is evident from these experiments that it is readily digested in artificial pancreatic (alkaline) juice, no less than 93·70 per cent. being hydrolysed.

The residue of cocoa after four hours' peptic and pancreatic digestion respectively was dried and weighed, the result giving, so far as experiments *in vitro* go, the total undigested matter. It should be stated that this undigested matter practically contains all the original fat of the cocoa since the power of artificial pancreatic juice actually to digest fat is very feeble, though to some extent it is probably capable of hydrolysing it. In the following results, therefore, the fat is deducted.

Undigested Residue after the Digestion of Cocoa in Artificial Peptic and Pancreatic Juices.

	Undigested.	Digested (by difference).
Cadbury's	31·73	68·27
Van Houten's...	31·65	68·35
Plasmon cocoa	14·88	85·12

The above results are the mean of six distinct experiments. Even with digestion experiments "in the test-tube" it is abundantly evident that cocoa contains a very considerable amount of true food material. The proportion of undigested residue in Plasmon cocoa is of course much less than in the pure cocoas but then this is due to the large excess of proteid. In the one case we have the cocoa digested; in the other chiefly the plasmon. Plasmon unmixed with cocoa is undoubtedly digestible; its digestibility, however, in the gastric juice is considerably diminished by the presence of cocoa, owing probably to the effect of cocoa-red or tannin. On the other hand, the digestibility of the natural proteid constituents of cocoa is apparently not affected. In view, therefore, of the fact that cocoa contains true food material in approximately physiological proportions in relation to the amounts of proteid, fat, and carbohydrate, the addition to it of foreign proteid must be regarded as physiologically superfluous. It amounts to an excessive proportion of nitrogenous food at the expense of fat and carbohydrates. Physiologically speaking, the dilution of cocoa with a carbohydrate such as starch or sugar would be a more rational proceeding, since as the experiments show cocoa contains a valuable proportion of digestible proteid as well as fat, starch, and other carbohydrates.

It has been said that "without proteid we die," and it would be equally true to assert that with nothing else but proteid in the diet we should die also, since the other elements, fat, carbohydrates, and mineral matter, are equally essential. When these elements are not present in physiological proportions the food is not complete, it is ill-balanced and not in accordance with the requirements of the body. The word nitrogenous is not synonymous with the word nutritive. Cocoa, as will be seen from a reference to the average analyses given in the previous article, approaches in composition to a complete food such as milk, but, unlike milk, it is necessarily not capable of being consumed in large quantities. Its mildly stimulating properties must further be taken into account in connexion with its use as an article of everyday diet and as an admitted restorative.

Lastly, it is interesting to note the behaviour of cocoa under the action of weak acids and alkalies in the absence of organic hydrolytic agents (ferments) altogether. Practically 93 per cent. of cocoa is soluble either in weak acid or alkali, some 7 per cent. of indigestible fibre remaining, as the following results show:—

Cocoa.	Soluble in weak acids.	Soluble in alkali.	Insoluble in both.	Total soluble.
	Per cent.	Per cent.	Per cent.	Per cent.
Cadbury's ...	41·50[1] ...	51·70 ...	6·80 ...	93·20
Van Houten's	41·10[2] ...	51·70 ...	7·20 ...	92·80
Plasmon ...	56·10[3] ...	39·60 ...	2·30 ...	97·70

These results would appear to indicate that probably a larger proportion of cocoa would be utilised in the metabolic processes of the human body than is shown in experiments conducted *in vitro* with artificial digestive juices.

Public Health and Poor Law.

LOCAL GOVERNMENT BOARD.

REPORTS OF INSPECTORS OF THE MEDICAL DEPARTMENT OF THE LOCAL GOVERNMENT BOARD.

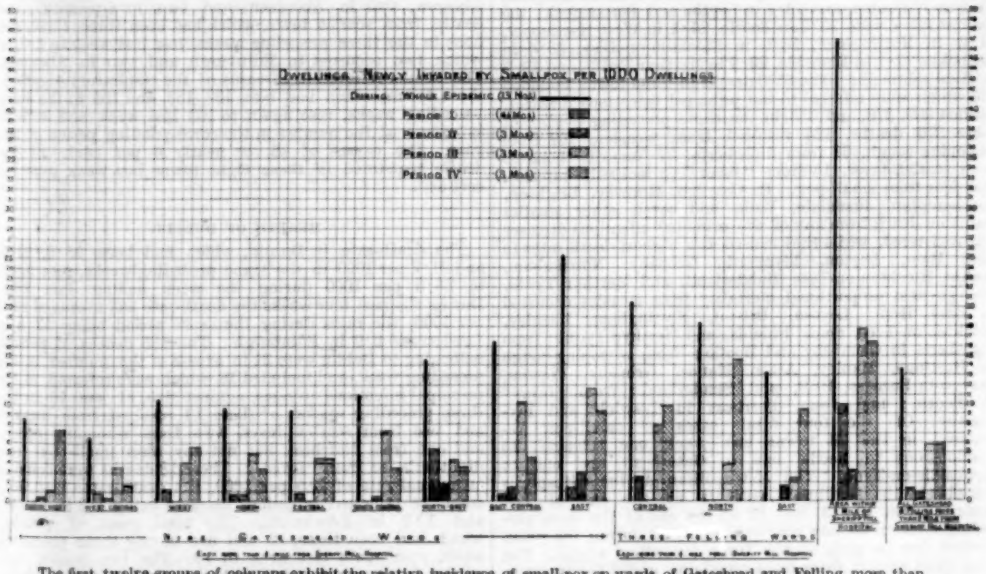
On Small-pox in the Dewsbury Union, by Dr. S. W. WHEATON.[4]—Dr. Wheaton gives in this report a vivid picture of the local neglect and maladministration which have been so largely responsible for the heavy epidemic of small-pox which attacked Dewsbury and adjoining towns during the past autumn and is even yet not entirely at an end. The whole of the Dewsbury union, which comprises Dewsbury itself, three other municipal boroughs—Batley, Morley, and Ossett—and also ten smaller districts, has long been known for its hostility to the administration of the vaccination law. This was particularly marked in years previous to 1891-92, when Dewsbury and its neighbourhood suffered from a severe epidemic of small-pox which was the subject of an elaborate analytical study made by Dr. Sidney Coupland on behalf of the Vaccination Commission. Dr. Coupland's observations formed a convincing demonstration of the protective effect of vaccination which was manifested during that epidemic, but it is evident that they have had little effect on the Dewsbury guardians who have continued to do as little as possible to carry out their vaccination duties. As a result, at the beginning of last year's epidemic the proportion of unvaccinated children was extremely high. The adults also no doubt comprised a large proportion of unvaccinated, although it is probable that the proportion of comparatively well-protected persons among them was larger than in many towns owing to the extensive revaccinations in 1891-92 and to the number of persons who were attacked by small-pox in those years. It is usually claimed by antivaccinationists in support of their position that an epidemic of small-pox can be averted by "modern methods"—i.e., isolation, disinfection, and observation of "contacts"—and experience shows that where these methods are stringently applied (together with prompt vaccination of those known to be exposed to infection) a town with a bad record for infantile vaccination may nevertheless often keep an invasion of small-pox within relatively small limits. In the neighbourhood of Dewsbury, however, the local authorities failed to realise the need for providing adequate means of isolation and disinfection which unfortunately have to be faced by every large district so long as our vaccination laws relate only to infants and are specially called for in places where infantile vaccination is habitually neglected. It is not surprising, therefore, that the outbreak from which the neighbourhood has suffered has been severe. Dr. Wheaton's report relates to visits to the localities concerned during the earlier stages of the epidemic. By the middle of October last there had occurred in 1904 412 cases of small-pox in Dewsbury, 84 in Thornhill, 118 in Ravensthorpe, and many more in Ossett and other districts in the union. Dr. Wheaton found that the vaccination authority, the Dewsbury guardians, was doing practically nothing, although timely provision of assistance to the public vaccinators would have been invaluable, while the arrangements of the several sanitary authorities to deal with small-pox were most inadequate and unsatisfactory. In Dewsbury the small-pox hospital (situated at the cemetery) was "a collection of small galvanised iron buildings and had a very dilapidated and forbidding appearance; nearly all the windows were broken, the apertures having been stuffed with paper or rags. ..... A fœtid smell was noticeable outside the hospital and heaps of refuse and partially consumed food lay around it. ..... On entering the building the fœtor was extreme; the wards were much overcrowded and were pervaded by flies, which arose in swarms from the patients when disturbed. The interiors of the wards were very dirty." In charge of 76 patients (in many of whom the disease was of a severe type) were only eight nurses who were provided with wholly inadequate quarters. Extension of small-pox from the hospital to dwellings in its neighbourhood, whether due to communications between patients and their friends outside, to general maladministration, to atmospheric convection, or to all three causes together, was apparently taking place. Dr. Wheaton ascertained that the residents of houses within a quarter of a mile of the site were being attacked by small-pox in exceptional numbers. The Thornhill temporary small-pox hospital, though clean, was also inadequate and overcrowded. On the female side "17 persons were sleeping in 14 beds in a ward intended for six only." The Ravensthorpe district had an arrangement to send patients to the Dewsbury hospital but this could not be continued owing to the demands of Dewsbury itself. Consequently in this district cases of small-pox were left at their homes without proper nursing and often under conditions which involved the sick and the healthy occupying the same sleeping room or the same bed. Graphic instances of this objectionable state of things are given in the report and Dr. Wheaton observes that it would hardly be credited that such conditions were capable of existence in a civilised country. In other districts visited the position, though not as bad as at Ravensthorpe, was sufficiently serious. Dr. Wheaton records the advice which he gave to each of the authorities concerned and which fortunately was in many cases followed with satisfactory results. Although a large number of

[1] Including 7·33 per cent. starch. [2] Including 2·70 per cent. starch. [3] Including 1·99 per cent. starch.

[4] London, Eyre and Spottiswoode, East Harding-street; Edinburgh, Oliver and Boyd; Dublin, E. Ponsonby. Price 3d.

people in the Dewsbury union, particularly the "contacts" in invaded houses, were persuaded by fear of small-pox to protect themselves and their families by vaccination, this was often not the case. Some of the Ravensthorpe people appeared "to have become accustomed to the presence of small-pox, regarding it as a calamity which it was hopeless to fight against." In one instance, when small-pox was going through the household, "I urged the father to have this remaining unvaccinated child vaccinated but he declined. I asked him if he was not convinced of the protection afforded by vaccination since he knew that the medical men who were constantly going in and out of the infected houses had none of them taken the disease, but he replied that medical men were protected by a charm with which they would not part." As our readers are aware,[5] the inactivity of the guardians who refused to open vaccination stations led to special action by the Local Government Board which made the new departure of issuing an Order under Sections 130 and 134 of the Public Health Act, 1875, to the Dewsbury, Ravensthorpe, and Soothill districts empowering the medical officers of health to vaccinate or to revaccinate any person in immediate danger of contracting small-pox and requiring that the town or district council should provide a centre or centres for free vaccination or revaccination and should appoint medical visitors if the medical officer of health so advised. Later returns will no doubt enable us to gauge more exactly the success of these and of the various other emergency methods which we understand were adopted after the visits on which Dr. Wheaton reports. The epidemic of small-pox in this union must have entailed a severe strain not only on officers of the central and local public health authorities but also upon many of the medical practitioners in the districts concerned.

On Small-pox in Gateshead and Felling, 1903–04, in relation to Sheriff Hill Hospital, by Dr. G. S. BUCHANAN.[6]—This report relates to prevalence of small-pox in very different circumstances to those of Dewsbury. The districts of Gateshead and Felling lie on the south bank of the Tyne, opposite Newcastle, and adjoin each other. In April, 1903, when small-pox first became prevalent, the equipment of both districts was fairly complete. There was sufficient hospital accommodation and then, and all through the epidemic which followed during the next 13 months, notified cases were removed to hospital almost invariably within 12 hours, and usually within a much shorter time, from the receipt of notification. Disinfection of dwellings, bedding, clothing, and the like was practised systematically. "Contacts" in Gateshead were kept under regular observation and in Felling were maintained at their homes at the expense of the district council. Both districts are comprised in the Gateshead union, in which infantile vaccination appears to be enforced fairly well; emergency measures adopted by the Gateshead guardians during the epidemic secured the protection of a large number of the inhabitants. Usually, though by no means always, the "contacts" accepted vaccination or revaccination and a large majority of them did not contract small-pox. Notwithstanding the various precautions adopted the epidemic reached considerable dimensions. From April, 1903, to May, 1904, Gateshead, with a population of 109,000, had 316 houses invaded and 510 cases of small-pox; Felling with a population of 22,500 had 106 houses invaded and 155 cases. The latter district is in the administrative county of Durham and in March, 1904, the county medical officer of health, Dr. T. Eustace Hill, drew attention to the exceptional incidence of the disease on the portions of Felling nearest to the Sheriff Hill Hospital in which all the cases of small-pox which arose in Gateshead were being treated. This hospital, though situated within the borough of Gateshead, is close to the Felling boundary. Dr. Hill and Dr. W. E. Peacock, medical officer of health of Felling, concluded that the exceptional incidence was to be ascribed to aerial convection of infection from the hospital. The subject of the distribution of small-pox in different areas of Gateshead and Felling was then investigated by Dr. Buchanan on behalf of the Local Government Board. His report is illustrated by maps and diagrams and forms an interesting contribution to the subject of the influence of a small-pox hospital on the neighbourhood. The facts recorded by Dr. Buchanan make it quite certain that small-pox was exceptionally severe in parts of Gateshead and Felling which are near the hospital. Within half a mile of it there are 1297 dwellings and the proportion of these invaded by small-pox was 47 per 1000 as against 14 per 1000 in the rest of Gateshead and Felling more than half a mile from the hospital. Within a quarter of a mile of the hospital there are 330 dwellings; 27 of these, or 82 per 1000, were invaded. It might be supposed that these figures could be accounted for by the accidental occurrence of undetected cases in some house or houses near the hospital but this suggestion is disposed of by the study of


Dwellings Newly Invaded by Small-pox per 1000 Dwellings
During Whole Epidemic (13 Mos.)
Period I. (6 Mos.)
Period II. (3 Mos.)
Period III. (3 Mos.)
Period IV. (1 Mo.)
Nine Gateshead Wards
Three Felling Wards

The first twelve groups of columns exhibit the relative incidence of small-pox on wards of Gateshead and Felling more than half a mile from Sheriff Hill Hospital. The East Ward of Gateshead (9th group) contains many dwellings within one mile of the hospital; the Central Ward of Felling (10th group) is between three-quarters and one mile from the hospital. The 13th group shows the incidence within half a mile of the hospital; the 14th group shows that on all Gateshead and Felling more than half a mile from the hospital.

[5] THE LANCET, Oct 29th, 1904, p. 1227.

[6] London: Eyre and Spottiswoode, East Harding-street; Edinburgh, Oliver and Boyd; Dublin, E. Ponsonby. Price 8d.

the facts given for different periods of the epidemic which show that all through the 13 months the same disproportionate incidence was observed. Dr. Buchanan has also applied a very searching test by comparing the intensity of small-pox prevalence within the half-mile area with that in 12 wards of Gateshead and Felling each of which is more than half a mile from the hospital and contains somewhat about the same number of dwellings as the half-mile area. He finds that the incidence on the half-mile area exceeded that in any one of these wards and that this is shown not only when the epidemic is taken as a whole but also when it is divided into three-monthly periods. We reproduce here the diagram in the report which illustrates this. Dr. Buchanan also gives reasons for believing that the influence of the hospital was exerted on certain localities near, but more than half a mile from, Sheriff Hill Hospital. His conclusions on the facts obtained are that there is no evidence that maladministration or absence of proper precautions in connexion with the traffic to and from the hospital was responsible for the exceptional and sustained incidence on the half-mile area and that the probable explanation is that here, as in other well-known cases, aerial transmission of infection has occurred. Dr. Buchanan agrees also with the observations of Dr. Hill that the direction of prevalent gentle winds at Sheriff Hill accords with this explanation. It is in any case evident that the use of this hospital has been responsible directly or indirectly for a material portion of the epidemic which has occurred during 1903–04 in these two administrative districts and Dr. Buchanan concludes by stating that he has no hesitation in recommending that it should no longer be used for the isolation of small-pox.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 76 of the largest English towns 8914 births and 5520 deaths were registered during the week ending Jan. 28th. The annual rate of mortality in these towns, which had been 19·9, 17·5, and 18·1 per 1000 in the three preceding weeks, further rose to 18·4 per 1000 last week. In London the death-rate was 18·9 per 1000, while it averaged 18·1 per 1000 in the 75 other large towns. The lowest death-rates in these towns were 9·0 in Walthamstow, 9·3 in Handsworth (Staffs), 10·5 in Hornsey, 12·0 in King's Norton, 12·3 in Southampton, 13·2 in Willesden, and 13·7 in Leyton and Portsmouth; the highest rates were 23·3 in Bootle, 24·1 in West Hartlepool, 24·2 in Nottingham, 24·9 in Stockton-on-Tees, 25·4 in Rochdale, 27·1 in Rhondda, 28·9 in Merthyr Tydfil, and 29·7 in Middlesbrough. The 5520 deaths in these towns included 376 which were referred to the principal infectious diseases, against 399, 378, and 358 in the three preceding weeks; of these 376 deaths, 124 resulted from measles, 107 from whooping-cough, 61 from diphtheria, 37 from diarrhœa, 28 from scarlet fever, 15 from "fever" (principally enteric), and four from small-pox. In Croydon, Hornsey, Brighton, Southampton, Rochdale, York, and seven other smaller towns no death from any of the principal infectious diseases was registered, while they caused the highest death-rates in East Ham, Leyton, Plymouth, Grimsby, Nottingham, Bootle, Stockton-on-Tees, Sunderland, and Merthyr Tydfil. The greatest proportional mortality from measles occurred in East Ham, Leyton, Bristol, Nottingham, Burnley, Stockton-on-Tees, South Shields, and Merthyr Tydfil; from diphtheria in Grimbsby and Bootle; from whooping-cough in Hastings, Hanley, Aston Manor, Grimsby, Preston, Barrow-in-Furness, Hull, and Sunderland; from "fever" in Bootle; and from diarrhœa in Ipswich and Plymouth. Of the four fatal cases of small-pox registered in the 76 towns last week one belonged to London, one to Leeds, one to Gateshead, and one to Newcastle-on-Tyne. The Metropolitan Asylums Hospitals contained 15 small-pox patients at the end of last week, against 18, 19, and 18 at the end of the three preceding weeks; no new case was admitted during the week, against one in each of the three preceding weeks. The number of scarlet fever cases remaining under treatment in these hospitals and in the London Fever Hospital, which had been 2309, 2192, and 2174 on the three preceding Saturdays, had further declined to 2096 on Saturday, Jan. 28th; 251 new cases were admitted during the week, against 187, 194, and 225 in the three preceding weeks. The deaths in London referred to pneumonia and diseases of the respiratory system, which had been 443, 301, and 377 in the three preceding weeks, further rose last week to 478 and were 47 above the number in the corresponding period of last year. The causes of 72, or 1·3 per cent., of the deaths in the 76 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Leicester, Leeds, Newcastle-on-Tyne, Cardiff, and 46 other smaller towns; while the largest proportions of uncertified deaths were registered in Portsmouth, Birmingham, Aston Manor, Liverpool, St. Helens, Rochdale, Sheffield, and Gateshead.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 20·6, 21·6, and 20·1 per 1000 in the three preceding weeks, rose again to 20·3 per 1000 during the week ending Jan. 28th and was 1·9 per 1000 above the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 15·8 in Paisley and 16·5 in Dundee to 23·8 in Greenock and 26·5 in Aberdeen. The 681 deaths in these towns incluced 44 which were referred to whooping cough, nine to diphtheria, nine to diarrhœa, six to measles, six to "fever," and five to scarlet fever. In all, 79 deaths resulted from these principal infectious diseases last week, against 79, 85, and 72 in the three preceding weeks. These 79 deaths were equal to an annual rate of 2·4 per 1000, which was 1·3 per 1000 above the mean rate last week from the same diseases in the 76 large English towns. The fatal cases of whooping-cough, which had been 37, 45, and 33 in the three preceding weeks, rose again last week to 44, of which 25 occurred in Glasgow, seven in Greenock, three in Edinburgh, three in Aberdeen, three in Paisley, and three in Perth. The deaths from diphtheria, which had been four, five, and three in the three preceding weeks, increased to nine last week, and included four in Glasgow and three in Edinburgh. The fatal cases of diarrhœa, which had been 13, 16, and 17 in the three preceding weeks, declined again last week to nine, of which five were registered in Glasgow and three in Edinburgh. The deaths from measles, which had been 14, 12, and 15 in the three preceding weeks, decreased to six last week and included three in Aberdeen. The fatal cases of "fever," which had been eight, four, and three in the three preceding weeks, rose again last week to six and included two in Glasgow, two in Aberdeen, and two in Greenock. The deaths from scarlet fever, which had been three, three, and none in the three preceding weeks, rose last week to five, of which two occurred in Edinburgh and two in Aberdeen. The deaths referred to diseases of the respiratory organs in these towns, which had been 182, 183, and 156 in the three preceding weeks, rose again to 163 last week and were 35 in excess of the number in the corresponding period of last year. The causes of 25, or nearly 4 per cent., of the deaths registered in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 25·6, 22·6, and 21·2 per 1000 in the three preceding weeks, rose again to 25·5 per 1000 during the week ending Jan. 28th. During the past four weeks the death-rate has averaged 23·7 per 1000, the rates during the same period being 17·5 in London and 8·9 in Edinburgh. The 185 deaths of persons belonging to Dublin were 31 in excess of the number in the preceding week, and included 18 which were referred to the principal infectious diseases, against five, 21, and 10 in the three preceding weeks; of these 13 resulted from measles and two from scarlet fever, two from whooping cough, and one from diarrhœa, but not any from small-pox, from diphtheria, or from "fever." These 18 deaths were equal to an annual rate of 2·5 per 1000, the death-rates last week from the principal infectious diseases being 1·2 in London and 1·9 in Edinburgh. The fatal cases of measles, which had been three, 12, and five in the three preceding week, rose again last week to 13. The two deaths from scarlet fever corresponded with the number in the preceding week. The 185 deaths in Dublin last week included 26 of children under one year of age and 54 of persons aged 60 years and upwards; the deaths both of infants and of elderly persons were in excess of the respective numbers recorded in the preceding week. Four inquest cases and

four deaths from violence were registered; and 70, or nearly two-fifths, of the deaths occurred in public institutions. The causes of eight or more than 4 per cent. of the deaths registered in Dublin last week were not certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet Surgeons: R. Hardie to the *Vivid* for the *Commonwealth*, and on recommissioning; R. A. Fitch and J. A. Thompson to the *Drake*. Staff Surgeons: W. R. Trythall to the *Diamond* on commissioning; E. S. Miller to the *Vivid*; and R. T. Gilmour to the *Eumont*. Surgeons: H. C. Whiteside to Malta Hospital; A. R. Schofield to the *Vivid* for disposal; E. D. J. O'Malley to the *Pembroke* for Chatham Dockyard; A. F. Fleming to the *Lapwing*; E. R. L. Thomas to the *Sphinx*; A. D. C. Cummins to the *Empress of India*; and W. N. Horsfall to the *Exmouth*.

ARMY MEDICAL SERVICE.

Surgeon-General W. J. Fawcett, C.B., Army Medical Staff, to be Deputy Director-General, vice Surgeon-General A. Keogh, C.B., appointed Director-General (dated Jan. 20th, 1905).

ROYAL ARMY MEDICAL CORPS.

The following officers, on arrival in India, will be posted as follows: Major A. Kennedy to the 6th Division; Captain W. E. Hudleston to the Nagpur District; Captain J. G. Berne to the 6th Division; Lieutenant A. A. Meaden to the 5th Division. Major T. B. Beach, now in Bengal, is appointed to the Thames District for duty. Major C. E. Pollock is held in readiness for service in Malta, embarking about March 25th. Lieutenant-Colonel S. F. Freyer, C.M.G., on promotion, is transferred from the Home District to Aldershot for duty at the Cambridge Hospital.

Colonel W. Allan May, C.B., is appointed Principal Medical Officer for Salisbury Plain District.

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Major S. Linton, having resigned his commission in the Volunteers, ceases to belong to the Army Medical Reserve of Officers (dated Jan. 28th, 1905).

INDIAN MEDICAL SERVICE.

The following gentlemen were successful at the examination for admission to the Indian Medical Service held on Jan. 24th and four following days:—

	Marks.		Marks.
Hamilton, A. F.	3572	MacWatters, M. R. C. ...	3143
White, A. D.	3279	O'Neill, J. S.	3140
White, R. K....	3223	Boalth, W. H....	3215
Rensey, M. F.	3180	Hamilton, W. H.	3118
Wilson, N. M.	3166	Coppinger, C. J.	3026
Buckley, H. C.	3150	Cunningham, J.	3024
Soltau, G. A.	3149	Falk, H.	3016

35 candidates (17 of whom had university degrees) competed for the 14 vacancies.

THE WAR IN THE FAR EAST.

Russia is at present the arena of revolutionary activity and as we have already said the events taking place there have had the effect of rivetting public attention on the internal condition of that country and of almost altogether withdrawing it for the time being from the theatre of war in the Far East. Still, the widespread political unrest in Russia must have been intensified by the news of the failure of General Kuropatkin's recent effort to turn Marshal Oyama's strong position and by the defeat of the Russians who have been driven back into a position nearer Mukden with an estimated loss of 10,000 in killed and wounded as against 5000 on the part of the Japanese. However desirable it may be for the real interest of Russia to make peace and however much the Russian nation may wish it it is hardly likely that its autocratic Government will at present adopt any such policy. As regards the state of civil war now going on in Warsaw there is little to be recorded except the facts that the hospitals are said to be filled with sick and wounded and that a bread famine exists to add to the miseries of the poorest classes of that city.

Correspondence.

"Audi alteram partem."

RESEARCHES INTO THE ETIOLOGY OF CARCINOMA.

To the Editors of THE LANCET.

SIRS,—While thanking you for your appreciative annotation upon our paper which appeared in THE LANCET of Jan. 28th, p. 244, we feel obliged in the interests of cancer research to join issue with you in regard to your declaration that there is no analogy between the phenomena of finger-and-toe disease and those of carcinoma, which we are convinced can only have been made under a misapprehension as to the actual facts of the case. Had we thought that the point would be questioned we should certainly have dealt with it. It is one of several that we purposely did not touch upon, chiefly because the mere description of our observations necessitated a paper that we felt would already encroach too largely upon your valuable space.

The striking parallel that exists between the phenomena of finger-and-toe disease and those of carcinoma has been pointed out by several observers, but particularly by Dr. Gaylord, to whose papers we referred. Briefly, the phenomena of finger-and-toe disease (especially as observed in turnips) that are analogous to those of carcinoma are the following. The morbid changes consist essentially in a rapid, abnormal local proliferation of the cells of the plant, resulting in the formation of large tumour-like excrescences. Such abnormal growth may occur at any period in the life of the plant. We have observed it to be initiated and to proceed to the formation of a considerable local swelling in a previously healthy root which had completed its growth, which had been removed from the ground, and from which the leaves had been cut away. On section the localised tumours attached to the healthy portion have a general appearance which is comparable to that of an epithelioma of the lip. The morbid process very commonly goes on to ulceration, invasion of the tumour mass by putrefactive bacteria, and death of the host. The general health of the plant is always seriously affected from an early period of the disease. Inoculation of a healthy plant with material from an affected one does not result in the transmission of the disease. Tumours may, on the other hand, be grafted upon a normal plant and the subsequent tumour growth is formed exclusively by descendants of the grafted cells. The evidence goes to show that the morbid proliferation commonly begins at only a few points and that by multiplication of a small number of primarily infected cells tumour masses of large size may arise. Whilst the fact that the plasmodiophora brassicæ is the cause of the disease is beyond question, all attempts to cultivate the parasite through its successive phases have hitherto proved futile.

If these facts do not furnish a parallel to those regarding carcinoma it would be interesting to know what phenomena that a plant is capable of manifesting might legitimately be considered to do so. Whilst the existence of this analogy is a striking and incontrovertible fact we would point out that it is not logically necessary for the support of the conclusions we have formulated on the ground of actual observations regarding the etiology of carcinoma. We have not alleged that the plasmodiophora brassicæ is the cause of carcinoma. We have merely maintained that a parasite of the same class is present in carcinomatous tumours. There are grounds for believing that there are several parasitic plasmodiophoræ, just as there are many parasitic bacteria, and it is extremely unlikely that the pathogenic action of each species is exactly the same.

We are, Sirs, yours faithfully,

W. FORD ROBERTSON,
HENRY WADE.

Laboratory of the Scottish Asylums, Edinburgh, Jan. 30th, 1905.

*** We are glad to know that Dr. Robertson and Mr. Wade recognise the importance of the omissions to which we drew attention. The letter which we print above implies that the writers have convinced themselves by personal observation and experiment that an analogy exists between the morbid changes of "finger-and-toe" disease in

turnips and carcinoma in man. We have had no opportunity of investigating the nature of the evidence on which their opinions are based and we are therefore debarred from commenting upon it. It is otherwise with the published work of Gaylord, Woronin, Nawaschin, Behla, and Podwyssozki whom the writers have quoted. These investigators have not established either that cancer is an infective disease or that an analogy exists between the morbid processes of "finger-and-toe" disease and carcinoma any more than do the contributions of von Leyden and others to the same subject. If the writers have succeeded where earlier workers on the plasmodiophora have failed it is all the more necessary for them to supply a convincing demonstration of the fact. Until they do so they cannot claim to have done more than to have described and interpreted another cell inclusion in carcinoma and the serious criticisms of von Tubeuf, Lubarsch, and von Hansemann will still remain unanswered, as will the more general criticisms which have been passed upon the cell inclusions of cancer generally. We trust that workers with such a desire to be objective as Dr. Robertson and Mr. Wade will not only be able to solve the many contradictions in the literature on the relation of the plasmodiophora to cancer and cell inclusions generally but that they will succeed in establishing their thesis.—ED. L.

CERTIFICATES FOR MIDWIVES AND THE OBSTETRICAL SOCIETY OF LONDON.

To the Editors of THE LANCET.

SIRS,—In your issue of Jan. 28th there is a report of an inquiry held by the Central Midwives Board into a charge against a certified midwife of signing false certificates. As there is a passage in that report which is in danger of creating an impression contrary to fact and detrimental to the reputation of the Obstetrical Society of London, may I, as the witness whose evidence is concerned, be allowed a word or two by way of explanation? The statement that I made was to the effect that the Obstetrical Society of London some ten years ago was in the habit of occasionally accepting a certificate of attendance upon a smaller number of cases than the regulations required on the understanding that a supplementary certificate would be furnished before the day of examination showing that the candidate had by that time completed the required number. This is, of course, a very different thing from conniving at a false certificate, which is what your readers would naturally suppose from your report to be what the Obstetrical Society did.

I am, Sirs, yours faithfully,

A. HANNAM,
Secretary and Librarian of the Obstetrical Society of London.

Jan. 30th, 1905.

OVARIOTOMY IN A COTTAGE.

To the Editors of THE LANCET.

SIRS,—The unusually early age of the patient, who was only 11½ years old, impels me to report this case. I was called in to see the patient, a little girl, by Dr. R. McCandless of Rathfriland. She had a temperature of 101° F. and was suffering from colicky pains in the lower part of the abdomen with gastro-intestinal disturbance. These symptoms she had complained of more or less for the previous five months, but they had become much aggravated during the last few days with the elevation of the temperature. There was an obvious fulness of the hypogastrium and a tumour was plainly felt extending above the umbilicus, dull, fluctuating, very tense, and with clearly defined outlines. There was no dulness in the flanks and the tumour was unaltered on evacuating the bladder. There was a tuberculous family history and it was only this fact, coupled with the youth of the patient, who had shown no signs of early puberty, that cast any doubt upon the diagnosis of a frank ovarian cyst. I urged an immediate operation as the patient was in a serious condition but it was impossible to secure an experienced surgeon as her people were of very humble means and lived far away from any hospital, so that I had to undertake it myself. I did so with some diffidence, as neither the surroundings nor our equipment were ideal, but I had the advantage of valuable assistance from my friend Dr. J. A. D. Radcliffe and Dr. McCandless chloroformed the patient for us two days later. On opening the abdomen the tumour was found beneath the omentum with smooth surface, very tense, and filling the lower half of the abdominal cavity. On puncturing with trocar about one and a half pints of slightly blood-stained fluid escaped. The cyst was then found to spring from the left ovary, a few recent adhesions to the intestines being easily separated by the fingers. The appendages on the left side were removed along with the tumour. The right ovary appeared healthy and was left. On opening the tumour a mass of hair presented, revealing a dermoid cyst, and thus, I suppose, accounting for its development at so early an age. I would be glad to know, however, if such cases are at all common. The patient stood the operation well, although it was rather prolonged (one and a half hours), and made a good recovery. I removed the stitches ten days later and the wound was quite healed. The little girl is now running about and seems perfectly well.

I am, Sirs, yours faithfully,

J. HOPE REFORD, M.D. R.U.I.

Banbridge, co. Down, Jan. 28th, 1905.

SUNSHINE IN GUERNSEY.

To the Editors of THE LANCET.

SIRS,—It does not seem to be as widely known as it should be that this island is a highly favoured place as regards the large amount of sunshine it enjoys. A reference to the table given beneath will show that in 1904 Guernsey holds the record by 211 hours over Hastings, the sunniest town in England for that year:—

	Hours.		Hours.
Guernsey	1926	Cornwall	1660
Jersey	1866	Devonshire	1634
Hastings	1715	London	1328
Hurst Castle	1671	South of Ireland ...	1282

I am, Sirs, yours faithfully,

HY. DRAPER BISHOP,
Medical Officer of Health, States of Guernsey.

Jan. 28th, 1905.

ATMOSPHERIC CONDITIONS AND THE OCCURRENCE OF CEREBRAL HÆMORRHAGE.

To the Editors of THE LANCET.

SIRS,—I am much interested in Dr. J. W. Russell's contribution on the above subject in THE LANCET of Jan. 28th, p. 222, as since Dr. R. Hensleigh Walter and others so strongly suggested the influence of climatic conditions in deciding the onset of an attack of cerebral hæmorrhage I have been endeavouring to ascertain if any statistical proof could be obtained in favour of the belief which exists in the minds of many practitioners. The material at my disposal consists of a large number of death certificates and meteorological observations taken by myself. Only about 15 per cent. of death certificates give the duration of illness or date of attack. I thought it might be interesting to see if deaths from apoplexy were more common under high or low pressure. Dealing first with the returns for Bath for three years—121 deaths—I found that 64 per cent. of the deaths took place when the atmospheric pressure was above the average of the three years, 29·84 inches, but the pressure was above the average on 57 per cent. of the days of these three years.

Dr. Russell takes the average pressure of 12 years as 29·376 inches; this, I suppose, is the uncorrected reading of the barometer, otherwise it seems low. He says that a larger number of cases occurred on days on which the barometric pressure was above the average than on those when a pressure below the average was recorded, the proportion in the total number of cases being almost exactly as 5 to 4. Singularly enough in the three years 1901–03, the days on which the pressure was above the average compared with days on which the pressure was below the average were almost exactly as 5 to 4. If the same ratio obtained during the 12 years 1891–1902, Dr. Russell's cases must have been fairly evenly distributed, but days of high pressure being more frequent than days of low pressure attacks of cerebral hæmorrhage are apparently more common on days of high pressure. Anyone wishing to confirm these figures can

find meteorological records for London from 1882 onwards in Whitaker's Almanack.

The number of deaths from apoplexy in Bath being too few to afford statistics from which reliable conclusions could be drawn, I applied to Dr. D. S. Davies for permission to use the returns for Bristol and so obtained a total of 1575 certificates of deaths from cerebral hæmorrhage, apoplexy, or hemiplegia during the six years 1899–1904. The duration of illness or date of attack is only given in 299 of these certificates; these may not be representative as the date of attack may be more often stated when soon followed by death. In 70 per cent. of these cases death occurred within seven days and in 80 per cent. within one month; 55 deaths, or 18 per cent., being within 24 hours of attack and for these rapidly fatal attacks the following table shows the corrected 9 A.M. readings of the barometer on the day of death and also on the day preceding death; the groups of cases would not be the same. I have also given an approximate estimate of the comparative frequency of attacks of cerebral hæmorrhage at each pressure when allowance is made for the proportion of days of such pressure.

—	Barometric pressure (inches).			
	28·8 to 29·4	29·5 to 29·8	29·9 to 30·1	30·2 to 30·8
Death same day ...	6	15	17	17
Death next day ...	5	16	20	14
Estimated ratio ...	21	24	25	29

This empirical estimate founded on a small number of cases seems to support the argument which has been put forward, but a careful consideration of the monthly death-rates from cerebral hæmorrhage, which must be closely related to monthly attack-rates, in connexion with the meteorological conditions of each month for the past six years, leads me to the conclusion that atmospheric conditions have no special influence in determining an attack of cerebral hæmorrhage. January, February, and March are the months which show the highest death-rates from cerebral hæmorrhage and also from all other causes among elderly people. The Registrar-General's annual reports prove that the death-rate from apoplexy and cerebral hæmorrhage varies always in the same direction as the death-rate of deaths from all causes among persons between 65 and 75 years of age, although these special diseases cause less than 10 per cent. of all deaths at such ages.

I am, Sirs, yours faithfully,

Bath, Jan. 29th, 1905. W. H. SYMONS.

THE PRINCIPLES OF TREATMENT OF PNEUMONIA.

To the Editors of THE LANCET.

SIRS,—The able letter published in THE LANCET of Jan. 28th by Dr. A. G. Auld in criticism of my recent address on the Principles of Treatment of Pneumonia would have been still more welcome and valued had it been less exclusively devoted to the discussion of debatable points of theory. We are in full agreement in recognising that the first principle of treatment should be to prevent the invasion and the second to summon at once the force needed for its suppression. Although former attempts have failed to carry out these objects our hopes have been revived by Wright and Douglas's brilliant observations and may perhaps be at the eve of their fulfilment. But there is one point upon which we remain at variance. I still regard the risks which attach to lobar consolidation and to disablement of the lung as greatly in excess of any advantages which may belong to them in nature's scheme of cure. Preventive treatment, when it comes, will obviate pneumonic consolidation; and the anti-pneumococcus treatment of the future would presumably either forestall its occurrence or insure that arrest of its full development which it is the present endeavour to secure. Since an immediate cure cannot yet be attained, let us aim at as speedy a cure as may with safety be achieved with the remedies at our disposal. I believe that much can be effected by prompt and judicious action on the lines proved to be correct by the clinical results. Those measures which I have found to succeed in materially shortening or modifying the course of the attack are best described in one word by "elimination." To get rid of the germs and of the products of disease is to liberate the powers of health, which include any opsonic powers special to serum. How this is to be best effected and most quickly must have engaged the attention of many clinical workers. Their practical criticisms and suggestions would be most valuable as the special kind of help which the address was intended to invite.

I am, Sirs, yours faithfully,

Curzon-street, W., Jan. 28th, 1905. WM. EWART.

PS.—*Dechloridation* does not at present form part of my treatment. As I have employed it in one case only, that reported in my address, I keep an open mind as to its merits with considerable doubt as to its value.

BED-GEAR FOR INVALIDS.

To the Editors of THE LANCET.

SIRS,—In a recent number you published the design of a useful invalid night-gown. There is another simple garment often wanted by invalids which it is generally difficult or impossible to procure at a short notice and which, it seems to me, might profitably be put upon the market by an enterprising firm. I refer to a bed-jacket or covering for the shoulders, arms, and chest. Most people when confined to bed, even for a short time, need such a covering and in many hospitals bed-jackets of various kinds are provided, but in private it is generally found necessary to improvise such a garment or to use shawls or similar articles, all of which are unsuitable, in one or other way, for the object needed. What is wanted is a fairly closely-fitting jacket, extending to the waist, easily opened front and back, and with arms fastening at the wrists. It could be made of any woollen or soft material, preferably, I think, knitted. Such a bed-jacket I find it almost impossible to get in private and I feel sure that if a garment of this sort were put upon the market it would find a very large demand and many households would provide themselves with two or three of different sizes for use in any case of illness. Only this week a patient of mine, a gentleman of a practical turn of mind, asked me why we medical men did not suggest a suitable bed-jacket for housewives to keep in readiness for sickness. After trying various arrangements of shawls, &c., all equally unbearable, he had fallen back on a dressing-gown which, of course, while fulfilling the purpose of covering the arms and shoulders, still encumbered the bed with unnecessary skirts. I defended my profession as well as I could and said that we were not oblivious of such details as there had been quite lately in THE LANCET a beautiful picture of a convenient invalid nightdress. He insisted that his bed-jacket was of far greater importance and I am inclined to think he was right.

I am, Sirs, yours faithfully,

H. CAMERON KIDD.

Bromsgrove, Worcestershire, Jan. 27th, 1905.

INDIAN UNIVERSITY DEGREES AND THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

To the Editors of THE LANCET.

SIRS,—In replying to a correspondent in your issue of Nov. 12th, 1904, you mention that "the L.M. & S. is not a degree—it is a diploma." The University of Bombay calls it "the degree of L.M. & S." There is no such degree as M.B. in this University. The Vice-Chancellor when admitting us as graduates of the University also pronounces at the convocation, "I admit you to the degree of L.M. & S." I admit that the University should not have used the word "Licentiate" while granting a degree and that the degree of M.B. should have been instituted when the Faculty of Medicine was founded.

In other universities, such as those of Madras, Dublin, &c., where licences are granted in addition to the degree of Bachelor of Medicine, the L.M. & S. may properly be regarded as a licence, but such is not the case with the University of Bombay. It would be well for the examining boards in the United Kingdom to read the calendars of the

different universities before framing regulations concerning their mutual arrangements.

I am, Sirs, yours faithfully,
D. R. TATA, L.M. & S. Bombay.

*** If our correspondent will refer to p. 1448 of THE LANCET of Nov. 19th, 1904, he will there see a letter from Mr. S. B. Gadgil giving similar information and a note by ourselves stating that according to the testamur the L.M. & S. of the University of Bombay is called a degree.—ED. L.

THE TREATMENT OF STRABISMUS.

To the Editors of THE LANCET.

SIRS,—With respect to the operation of lengthening the tendon in cases of strabismus, described in THE LANCET of Jan. 28th (p. 254), by Dr. Landolt of Paris, I may perhaps be permitted to point out that I adopted a similar operation several years ago. In July, 1902, I read a note upon my method before the Ophthalmological Society and at the same time showed several patients upon whom the operation had been performed. I showed by diagrams that the tendon of the internal rectus might be lengthened in several ways without disturbing its insertion into the sclera. My communication was published in the Society's Transactions, vol. xxii. (1902), p. 276. I believe I am correct in claiming that I was the first to devise and to perform the operation now described by Dr. Landolt under the name of "muscular elongation." I am, Sirs, yours faithfully,

Welbeck-street, W., Jan. 30th, 1905. SYDNEY STEPHENSON.

THE QUESTION OF TESTIMONIALS.

To the Editors of THE LANCET.

SIRS,—My attention has been called to an advertisement in THE LANCET with the *facsimile* of a letter, or part of a letter, commending a medical preparation, which is signed "Always truly yours, James Paget." It is not in the handwriting of Sir James Paget. The firm who sent it to you assure me that it has been in their possession for some 30 years and that they have always regarded it as genuine. It may, of course, be a copy of part of a private letter written long ago by Sir James Paget, but there is not the faintest reason for thinking that it was written to the firm who have lately used it as an advertisement.

I am, Sirs, yours faithfully,

Harley-street, W., Feb. 1st, 1905. STEPHEN PAGET.

THE TREATMENT OF PULMONARY TUBERCULOSIS.

To the Editors of THE LANCET.

SIRS,—I was glad to see Dr. A. C. Falkiner in THE LANCET of Jan. 14th draw attention to the harm done by "stuffing" in sanatorium treatment. A great many patients, and unfortunately some doctors, are dissatisfied unless they see a weekly gain in weight. But everyone who has any experience of sanatorium treatment must remember cases where increase of weight and progress of disease have occurred at the same time. But even in favourable cases a rapid increase of weight throws a great strain on the heart and produces breathlessness and this in spite of uphill walking. Quite recently I saw a young man return from a short stay at a sanatorium with his lung distinctly improved but a pulse-rate never below 125 and going up to 140 and over on exertion, which undoubtedly was due to a large deposit of fat, and yet he was taking walking exercise up to five and seven miles per day. Another evil effect of "stuffing" is the respiratory distress produced by distension of the stomach. In a well-known sanatorium I have seen patients rise from table and on walking a few yards commence gasping for breath. This is mainly produced by a large quantity of carbohydrate diet, which I maintain is the cause of much discomfort to phthisical patients. Of course the large amount of carbohydrate diet increases weight rapidly and so produces a favourable impression on the patient's friends of the result of the treatment. As to the effect of foggy, rainy winters on some cases, I think they do harm. I have watched cases even in Germany go downhill whenever the misty days began but improve on moving to a warmer and drier atmosphere. As in every department of medicine it is wrong to dogmatise, but I am quite sure that many cases, especially in females, have gone back through persevering in the "Spartan" methods during damp winters.

I am, Sirs, yours faithfully,
X.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

The Sanitary Condition of Simla.

THE occurrence of several cases of enteric fever in Simla in 1903 and 1904 amongst the European and Eurasian population has called attention to the sanitary condition of this station. I understand that the Lieutenant-Governor of the Punjab has appointed a committee, consisting of the sanitary commissioner, the judge advocate general, the sanitary engineer, and the civil surgeon, to make full inquiries into the various complaints which have of late been made. Amongst other grievances may be mentioned the trenching of night soil and the foul smells along the Mall and other roads, the collections of putrefying matter permitted to remain, and the shortage of water during the summer months. The drinking water is in quality undoubtedly good. Simla is growing and the station is overcrowded and complaint is made that the houses are too close together one above the other on the hillsides. The sewage works are not yet completed and the arrangements for carrying off the sewage water are insufficient. The septic tank at the bottom of the valley is admittedly a success but the incinerator used for burning refuse works slowly and is of a crude construction. The dhobies wash the clothes in hill streams but also dobhies in foul pools. The cows and buffaloes are kept in crowded and dirty byres in the villages. It is suggested that the annual occurrence of fevers amongst the natives every spring may be due to typhoid fever but the registration of the causes of deaths is so defective that the supposition is mere guesswork. The milk-supply is open to grave suspicion of constant contamination.

The Increasing Plague Mortality.

The plague mortality throughout India is rapidly mounting up. For the week ending Dec. 31st, 1904, there were 22,645 deaths, as compared with 19,465 for the previous seven days. The increase is almost entirely in the Punjab and the United Provinces. The detailed figures are: in the United Provinces, 9574, against 6822 last week; the Punjab, 4643, against 3940; Bombay districts, 3774, against 4154; Bengal, 2496, against 2005; Hyderabad State, 516, against 809; Madras districts, 367, against 353; Rajputana, 314, against 345; Mysore State, 282, against 319; and Central India, 121, against 132. I have frequently drawn attention to the absence of mention of Poona city in these weekly figures, notwithstanding that plague has been raging very severely for two or three months past. The deaths in this city have been included in the figures for the Bombay districts but it appears that the recent outbreak caused 71 deaths in September, 654 in October, and 1337 in November. Since the census of 1901, when Poona was credited with 153,320 inhabitants, there have been no less than 15,587 deaths from plague alone. The rate of mortality during November was 104 per 1000 per annum from plague. This city has lost nearly 40,000 of its inhabitants from plague since the first visitation of the disease in 1896.

Social Reforms amongst the Indian People.

The recent Indian Social Conference in Bombay indicates a great change in the opinions of the leaders of the various native communities upon questions concerning social reform. I find a resolution was passed that the custom of child marriage is most injurious to the physical, economic, and social well-being of the people. In the Baroda State marriage of girls under 12 years of age has been discouraged by recent legislation. A motion was also carried expressing cordial sympathy with the temperance movement and adopting the resolution passed at the last All India Temperance Conference. A further motion considered enforced widowhood as an infringement of the rights of women and recommended that all obstacles in the way of the marriage of widows should be removed. It is not generally known what a large proportion of girls under ten years of age are married. The census gives a rate of 115 per 1000 females and for child widows 6 per 1000 females. This

shows that 1 in about every 9 female children is married before ten years of age and that about 1 in 20 of these infant marriages is followed by child widowhood. In Bengal the rate is much higher—nearly 1 in 5 of the female children being married—and in Behar the proportion rises to 1 in 3, with child widowhood about 1 in 18. When it is remembered that this widowhood is enforced in most cases for life the injustice and evil will be manifest.

Jan. 14th.

THE HOUSING PROBLEM AT BOSTON, U.S.A.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

MY first attempt to investigate the question of working-class dwellings and of the housing of the American poor was made in Boston. One of the local papers, the *Boston American*, sent a member of its staff to interview me and he at once inquired what I thought of the Boston slums. This enterprising journalist was somewhat disappointed on hearing that I had not thought about them at all and this for the simple reason that I had not seen them. If, however, he would take me round and show me the worst quarters of the town then I would be pleased to say what I thought about them. In this manner I secured the assistance of a pleasant guide and companion. First we visited Salem-street which is the Petticoat-lane of Boston. Here the population seemed somewhat dense and the dark recesses in many of the small shops looked forbidding but there was nothing very different from what may be seen in Europe—in, for instance, the Jews' quarter of Amsterdam. In Martin-street close by we found a house with only one closet which was certainly insufficient for the large number of inhabitants but it was clean and well flushed. In the basement there was, in the back part of the house, a very small room with no window opening to the outside and here lodgers slept, though for want of light and ventilation it was not fit for habitation. The tenement in this basement consisted in all of three rooms and the rent charged was £2 8*s*. per month. For from 25*s*. to 30*s*. a month better accommodation could be obtained in London and even in Paris. Another tenement which we visited had two good rooms and two dark back rooms and the rent was £3 per month.

From the Jews' quarter we went to the Italian and Portuguese district. In Keith's-alley overcrowding was the chief grievance, though this is not surprising considering the high charges made for rent. One of the tenements was ventilated by an irregularly shaped, small shaft which apparently had not been cleaned out for years. On the other hand, it was a pleasure to see here, as I have seen among the poor of Italy, the domestic cleanliness, the love of white and tidy linen which are the pride and joy of the Italian housewife. Here in one of these tenements, which I was assured formed part of the slums of Boston, we admired the white bed-linen and the embroidered pillow-cases of a bed that stood in the one living room. Close to the bed on the stove the dinner was in course of preparation, giving off aromatic odours which showed that the Italian housewife was as artistic in the selection of her flavouring ingredients as she was in the decoration of her household linen. In Page-court, off North-street, there were signs that the scavenging had been much neglected. There were barrels full to overflowing with ashes and garbage, so that dirty paper and other light refuse were blown about the yards. Then a number of rain-water pipes from the roofs had split open, some for their whole length. The aperture gaped and was widest about half-way from the top. The rain water coming down such pipes must escape and render the house wall very damp. Rents here were equally high in spite of this neglect and the back courts or openings were very erratic in shape and often not large enough to give sufficient air and light. In Power's-court and other places there are old houses with such very narrow and small windows that they cannot sufficiently light the rooms. On the other hand, it was satisfactory to note that many of the inhabitants kept these windows open as if they appreciated the advantages of having a plentiful supply of fresh air. Perhaps a small window that is constantly open is better than a large one that is always shut.

At a dispensary where the poor of this quarter obtain medical relief I was told that during the last three years they had patients belonging to 18 different nationalities. Indeed, while visiting these poor quarters it was difficult to believe that I was in America. In any case I felt much more at home than my guide who, being an American, had not my knowledge of these various European people. He was particularly impressed by the savoury cooking that was going forward in the poorest dens which we visited, whether the tenants were Portuguese, Italians, or Poles. But in all this we did not find any extensive prevalence of slum-like dwellings. There were details that required remedy. Thus in Greenough-lane there were three tenements with a family in each and only one closet between them. Here the backyard had planks of wood for pavement but the wood was in many places eaten away. Mud and dirt oozed through and egg-shells and other refuse lay about. The closet was dirty; nevertheless, when people stood on the seat they automatically pressed down a knob which produced a good flush. Then there were basement stairs which were dirty and dark. Nevertheless, and in spite of the details mentioned, it was only when we at last came upon the Italian organ-grinders' quarter that we found something worthy of comparison with a European slum.

Undoubtedly this Italian court was at once the worst and the only picturesque place we were able to discover. Here the houses or huts are built in a most irregular manner. There are terraces for roofs and other smaller houses rising from these terraces. The top house of all is so small and narrow that the attic where many organ-grinders sleep seems more like a passage under the roof. The space where it is possible to stand upright is barely three feet wide and then the slanting of the roof makes it necessary to stoop to reach the beds. These are placed as far as possible under the roof which is certainly not more than two feet above the sleeper as he is lying in bed. If this roof is not very perfectly tiled the bedding must get wet when it rains. Here at last we got the real stuffy smell of the genuine slum. While the highest parts of this strange conglomeration of houses or huts was thus so forbidding and foul, the very deep basement or cellar at the lowest and opposite extremity was not particularly inviting. Here there was an oven and beyond in the dark far side of this large sort of cellar there was a dirty long table where the "boarders" of the barrel-organ fraternity dine. Doubtless they dine well for the price they pay—namely, 10*s*. a month for sleeping in the attic and £1 12*s*. a month for feeding in the cellar. Just outside the door and steps leading to this cellar there are two foul, dirty, malodorous closets and a broken urinal. Fortunately, the garlic-laden fumes and the scent of bay-leaf and thyme which escaped from the well-flavoured stew simmering on the oven below provided a welcome if inefficient corrective to the defects of plumbing. Here was a good illustration of the fact that while the Anglo-Saxon race is more advanced in regard to drainage and sanitation generally the Latin races excel in domestic economy and the gastronomic arts. In further demonstration of this fact, and somewhat to the surprise of my American friend and guide, I asked the organ-grinders which restaurant they patronised when on fête days or other special occasions they indulged in a particularly good dinner. Having thus obtained a likely address we proceeded to lunch at the restaurant that enjoys the special patronage of Italian organ-grinders. As a result my American companion declared that he would forthwith bring his wife to this restaurant of organ-grinding renown so that she might learn how to cook. Undoubtedly the tasteless cold-storage meat eaten in America requires to be treated with the resourceful ingenuity of the Latin races in order that it may be rendered palatable.

With the exception of this small group of strange structures inhabited by organ-grinders it did not seem to me that the housing problem at Boston had reached the acute stage attained in many European towns, so far at least as the sanitary phases of the difficulty are concerned. There is undoubtedly a difference in the death-rates of various localities but I hardly think that this is due to any very striking structural defect in the dwellings. It is rather the result of poverty, of racial predisposition, and of overcrowding. Of course in this respect it is the tenement houses that are the worst. Fortunately, measures are being taken to put a stop to the "sky-scraper" nuisance. It is only in the business streets that the building of very lofty houses will be allowed. In residential quarters it will not be permitted to build a house

that measures in height more than one and a half times the width of the street. Therefore, if a street is 30 feet wide no house must be more than 45 feet high. In old quarters instead of pulling down houses so as to widen the streets it will, it is thought, be less troublesome and less expensive to remove some of the upper floors of the houses so that they shall not be higher than accords with the width of the street. This, however, is not at present the law, but a Bill to that effect is to be submitted to the State legislature.

Boston seems to be going through an experience similar to that acquired in England some 50 years ago. Thus from 20 to 30 years ago the entire housing problem it was believed would be solved by our old acquaintance the 5 per cent. philanthropist. A coöperative building society intended to erect model tenements and to content itself with 5 per cent. interest on the capital invested. The society also took over old and defective dwellings and improved them. But even under these conditions it had to charge £3 a month for tenements of three rooms; and some four years ago the managers came to the conclusion that in spite of such high rents this was no longer possible, at least not in the central and congested districts. The society said that the present building laws enforcing the employment of steel beams, plaster walls, and, in fact, strict fireproof conditions, made it too expensive to build. The question now discussed is whether it is a fact that nothing can be done so as to build model tenements at comparatively low rentals and yet yielding 4 or 5 per cent. profit. Private enterprise in Boston has reached the point attained in London many years ago and is now no longer desirous to speculate in such matters. Yet the municipality of Boston is not attempting to grapple with the difficulty. It refuses to own any land except parks for the people. Instead of acquiring land and itself building tenement houses, as the County Council of London and so many other towns in England have done, the municipality of Boston is only seeking to modify the law so that cheaper—that is to say, more dangerous—houses may be erected. It is proposed that the restrictions to make the houses fireproof shall be withdrawn. Thus, cheaper material being allowed in the construction of "model" dwellings, the philanthropists, at the risk of roasting their tenants, will after all be able to make their 5 per cent. Boston has not yet reached that stage of evolution in municipal matters which was attained in London and many large British towns some years ago. Its municipality does not realise that certain things have to be done, if not by private enterprise then by public enterprise; if not at a profit then at a loss; and that the greatest loss of all is to leave them undone. This applies with particular force to insanitary areas.

The prevalence of disease at Boston is not, however, intimately associated with any special quarter or area. Disease follows the race rather than any particular feature in sanitation. Thus tuberculosis is much more prevalent in the tenements inhabited by the Irish and pneumonia is more common in tenements occupied by other races. Undoubtedly the chief difficulty is with the new arrivals, immigrants who are not yet in receipt of the higher rate of wages paid in America and who consequently cannot afford the high rents charged. However, in spite of the immense crowd of immigrants who land there the housing problem at Boston has certainly not yet reached the acute stage which prevails in many of the seaport towns of Europe.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Victoria University: Opening of the New Pathological Laboratory.

THE formal opening of the new pathological laboratory in connexion with the Victoria University marks an occasion important in its relation to bacteriological research and to the bearing of increased and increasing knowledge on the public health. The laboratory is situated in Yorkplace, near the new infirmary, and has been planned so as to be well adapted for its purpose. It is two storeys in height, about 160 feet long by 60 feet deep, with outbuildings 136 feet by 16 feet. The chief characteristics are unlimited light and the installation of important and yet simple appliances. As one of the local reports says, "it will be, when more funds are received, better able to cope with public health work than any other laboratory in the kingdom." Professor S. Delépine has a staff of 13 qualified assistants, five students, one secretary, and six servants. Last year over 100 sanitary authorities, representing the public health of between five and six millions of people, made use of the laboratory "in cases or outbreaks of consumption in man and animals, anthrax, typhoid, malaria, food poisoning, glanders, fowl cholera, rag-pickers' disease, Asiatic cholera, plague, and noxious properties in all sorts of food." In addition to this the laboratory dealt with sterilisation and disinfection, methods of filtration, and many kindred questions. Reports are made by the staff on morbid products for public authorities and medical men. Bacteriology is taught to candidates for the diplomas of public health, to chemists, veterinary surgeons, and teachers in agricultural or dairy schools; investigations and research work are always going on in relation to the public health work and to cancer (in connexion with the Christie Hospital), while medical men often conduct investigations bearing on the cause and prevention of disease. Of course, all this entails expense and more pecuniary help is desirable if the wide field of usefulness lying open is to be cultivated thoroughly. As a local paper puts it, "a few benefactors" are needed "who are willing to decrease the death-rate of the future by paying now for the knowledge of how to prevent disease." Earl Spencer, the Chancellor, presided at the opening ceremony which was performed by Mr. W. J. Crossley, the chairman of the advisory committee, who it may be remembered gave munificently towards the establishment of the sanatorium for consumption in Delamere Forest in connexion with the Manchester hospital for that disease. He was presented with an ornamental key by Professor Delépine who described the remarkable growth of the work of the laboratory during the last ten years and stated that he had received letters of commendation from many distinguished men of science, including one from Lord Lister who said that the enterprise would be of immense service to Manchester and its neighbourhood and would bring additional renown to the Victoria University. In his reply Mr. Crossley stated that a large portion of the study and investigation carried on in the laboratory would tend towards the prevention of disease which was better than cure. "The layman's share of the work was to contribute to the funds, not to stint the means of study." The building cost over £6000 and the equipment £700, and this was largely unpaid, so that further sums were required for full equipment. The Vice-Chancellor, Dr. A. Hopkinson, referred to Professor Delépine's long years of work towards the establishment of this laboratory and added that Mr. Crossley had given much larger help than he would allow to be mentioned. The Lord Mayor, in moving a vote of thanks to Mr. Crossley, observed that nearly half of the work of the laboratory had been done for the corporation. Dr. Arthur Ransome seconded the vote of thanks and Professor Calmette of Lille, who spoke in French, humorously urged that if the laboratory were self-supporting it would imply a great prevalence of disease. On behalf of the Pasteur Institute of Lille and of Paris he congratulated Professor Delépine on his work.

"Held by Electricity."

An accident that took place recently at the Burnley electricity station illustrates the dangers always accompanying electrical developments. The staff and members of the electricity committee were witnessing the trial of an electrically driven air-compressor. After running for some little time on a wood floor it was proposed that it should operate on one of the dynamos. As soon as the engine driver put his foot on the metal floor plate he was thrown down. Mr. Birkett, the electrical engineer, ran to his assistance when his hands touched the metal drawbar of the compressor and he too was flung to the ground with great violence. "The whole of the current for tramway traction purposes was passing through the compressor" and Mr. Birkett could not loosen his hold of the drawbar. He got on his knees, received another heavy shock, and became unconscious. An assistant fortunately ran to the switchboard and broke the circuit, also receiving a severe shock, and Mr. Birkett was released. The engine-driver, in the first place, got a severe shock but Mr. Birkett was more seriously hurt. "Holes were burnt

through his trousers into the flesh of his legs" and one knee-cap was seriously injured.

Lead in Mossley Water.

Numerous cases of lead poisoning have recently occurred in the borough of Mossley. The chairman of the public health committee recently said that "from what he had been told they in Mossley were receiving the water against which Saddleworth people had so bitterly complained on account of the sickness and lead poisoning it caused." He cautioned householders before using water for domestic purposes to run off a quantity first. This caution, though often repeated, cannot be repeated too often, for haste, carelessness, and idleness cause its frequent neglect. The special liability to contamination by lead of moorland surface water is well known but often forgotten and has to be set against the good from the pure fresh breezes that come from the moorland gathering grounds.

Jan. 31st.

LEEDS.

(FROM OUR OWN CORRESPONDENT.)

The General Infirmary at Leeds.

THE statement of admissions and attendances for the year 1904, which will be incorporated with the annual report, shows an increase of work in almost all departments. The number of beds which are always ready for occupation is 395 and it has seldom been the case that more than 10 per cent. of these have been unoccupied. Attached to the infirmary is the Ida Semi-Convalescent Hospital at Cookridge, some four and a half miles from the infirmary. This has 46 beds and is of great service in affording accommodation to patients who, especially after operation, require skilled nursing combined with the benefits of a convalescent home. It is reserved exclusively for patients who have been treated at the infirmary. The total number of patients treated as in-patients during 1904 was 6873, of whom 356 were in the infirmary on Jan. 1st. Of the 6517 admitted 1191 were medical, 4044 were surgical—including 909 accident cases—730 were ophthalmic cases, 219 were aural cases, and 333 were admitted to the gynæcological wards. The average number of patients in the wards was 355. The number of deaths was 477, giving a death-rate of 6·94 per cent., but excluding 128 deaths which occurred within 48 hours of admission the mortality was 5·17 per cent. In the out-patient department close upon 40,000 new patients were attended to. These comprised 12,769 medical cases, 5462 surgical cases, 495 gynæcological cases, 4569 ophthalmic cases, and 1853 aural cases. Among the medical patients, but not included in the above figures, 688 new skin cases and 152 throat cases were separately dealt with by the out-patient physicians. The number of casualties amounted to 10,170. The new semi-convalescent home at Cookridge is approaching completion. This, which is to be called the Arthington Hospital, will, it is expected, be built and equipped entirely out of the fund given by the late Mr. Robert Arthington for the purpose, but its maintenance will involve an extra expenditure of about £2000 per annum. The design and elevation of the new buildings are very similar to those of the Ida Hospital which it adjoins. The two hospitals will, indeed, be practically one and the administration department, kitchens, &c., will be common to both. When the building is completed the infirmary will have at its disposal about 100 beds for patients who are described above as forming the semi-convalescent class.

Hospital for Women and Children.

Largely as the result of the increase in the work consequent on the opening of the new buildings and the institution of the lying-in department, some changes of importance have been arranged in the constitution of the honorary staff of the Hospital for Women and Children. The acting staff consists at present of three honorary surgeons who until a few months ago attended both to women and to children. In March an assistant physician was appointed to see the medical out-patients in the children's department and a new appointment is to be made of an assistant surgeon for children whose work will also be confined to the children's department. In making this new appointment and in filling up either post in the event of any vacancy occurring the electors will doubtless be influenced in their choice by considerations of special knowledge of the medical and surgical diseases of early childhood, for it is not intended that the assistant surgeoncy for children should carry with it any claim for promotion to the full staff on a vacancy occurring. It has also been determined that on a vacancy occurring in the full staff, which at present consists of three, the honorary surgeoncies shall be reduced to two and that an assistant surgeon shall be appointed who will assist the surgeons in their gynæcological and obstetric work and act as their deputy should occasion arise.

Leeds Public Dispensary.

Applications are invited for the post of honorary pathologist. The new officer will be in charge of the clinical laboratory and will have a seat on the faculty of the dispensary and on the board of management. The appointments in connexion with the new dental department have just been made. As honorary dental surgeons there have been appointed Mr. J. H. Carter, Mr. W. E. Margetson, Mr. J. E. Greaves, Mr. P. T. Leigh, Mr. W. Marston, and Mr. A. G. G. Plumley. The honorary assistant dental surgeons are Mr. Stephen D. Hey, Mr. James N. Nicol, Mr. Henry Perkin, Mr. Cecil G. Riddett, Mr. David Saville, and Mr. R. Littlewood Young. Mr. F. Sherburn at the end of his 20 years' service as honorary dental surgeon becomes consulting dentist to the institution.

Prosecutions for the Sale of Watered Milk.

The stipendiary magistrate has imposed fines of 40*s.* and costs in two cases and bound the defendant in the third case in the sum of £5 to come up for judgment if called upon and exacted an undertaking from him to abandon the trade. The amount of water in the three cases was respectively 14, 32½, and 11½ per cent.

Poisoning by Coal Gas.

Two cases of poisoning by coal gas are reported from Batley. From the account of the coroner's inquest it appears that the manager of the gasworks and a striker were found dead in the coal storage shed. They were found close to an upright four-inch gas main which connected the two purifiers and was provided with valves where it opened into each. It was not quite clear how the accident happened but it is supposed that the first victim was the striker and that the manager met his death in an attempt to rescue him. The gases which would escape if the valves were opened would be sulphuretted hydrogen, carbonic acid gas, and carbon monoxide. Mr. H. Keighley, who made the necropsies, gave evidence to the effect that death in each case was due to carbon monoxide, the presence of which in the blood was shown by the characteristic spectroscopic appearances.

Jan. 31st.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

Cardiff Infirmary.

FIVE years ago the governors of the Cardiff Infirmary inaugurated a scheme for providing necessary permanent additions to the institution, the principle of which lay in the publication of the specific requirements, together with their estimated cost. Several private individuals have subscribed the entire cost of certain of these requirements and altogether no less a sum than £18,000 has been expended. The latest addition to the infirmary is an electrical pavilion, the cost of the structure of which (£2800) has been paid by Mrs. W. H. Martin, and special subscriptions of £500 have defrayed the cost of the furniture and fittings. The pavilion, which was formally opened by Sir William Preece, F.R.S., on Jan. 26th, is a one-storey building placed in a central position on the main corridor of the infirmary. The inside walls are lined with pale olive-green crystopal tiles and the floors are paved, like that of the operating theatre, with terrazzo. The building includes a waiting room, two water-closets, a Finsen lamp room with dressing room, an x ray photographic room, a photographic room for developing, and a room for general electrical treatment. The installation of appliances is very complete, especially as regards x ray apparatus, and also includes a d'Arsonval-Gaiffe high-frequency apparatus which works directly without any interrupter from the town mains, appliances for stereoscopic and localising purposes, a

16-inch induction coil with adjustable primary winding (Dr. Walker's method) with Wehnelt electrolytic interrupter, to be worked from a motor generator giving 65 volts, a Finsen lamp, and a St. Bartholomew's Hospital lamp for ultra-violet rays. The department is in the charge of Dr. William Martin, one of the honorary assistant surgeons, who is himself the inventor of lead glass shields fitting on to focus tubes. He has also made ample provision for the protection of operators and patients from the deleterious effects of the x rays by means of a large lead screen to protect the whole body of the radiographer, a lead box with adjustable diaphragm for screen examinations, and lead glass shields. Colonel Bruce Vaughan, the chairman of the house committee, is very largely responsible for the acquisition of this pavilion.

The Teeth of School Children.

A valuable report has just been issued by Mr. E. Rice Morgan, medical officer to the Swansea education committee, in which he gives the result of an examination which he recently made of the teeth of some of the boys and girls attending five schools in the upper division of the borough. Among 151 boys examined only five, or 3·3 per cent., had no unsound teeth and of the remaining 146 boys each had on an average 3·7 decayed teeth. Among the 144 girls examined there were six, or 4·1 per cent., with all their teeth sound, while the remaining 138 had on an average 3·2 teeth which were unsound. Mr. Morgan is evidently of opinion that dental surgeons might with advantage be appointed to look after the teeth of the school children. He does not, however, advise this for the present but suggests that in the first instance parents and scholars should be supplied with printed rules for the preservation of the teeth of children. In the rules which he has drawn up he points out that sound teeth are necessary for good mastication and that good mastication is requisite for good digestion, that food left on the teeth ferments and becomes acid, thus producing decay, and that the teeth should be cleaned night and morning with a tooth brush and a simple tooth powder.

Carmarthen Asylum.

The committee of visitors of the Joint Counties Asylum at Carmarthen has increased the salary of the medical superintendent (Dr. Edwin Goodall) from £600 to £700 per annum. Dr. Goodall has held his present appointment for nearly 11 years.

Motor-cars for County Officials.

A committee of the Glamorgan county council has recommended the purchase of a 12-horse power motor-car at a cost of £475 for the use of the county surveyor. The salary of the surveyor of the Carmarthen county council has been increased in order that he may use a motor-car for travelling about the county.

Meteorological Records at Bath.

Ever since he was appointed medical officer of health of Bath, eight years ago, Dr. W. H. Symons has devoted a great deal of time to the investigation of the meteorological conditions of the city and at the last meeting of the West of England and South Wales branch of the Incorporated Society of Medical Officers of Health he laid before the members some of the results of his observations. As an illustration of the necessity for checking the records of an earth thermometer he stated that on one occasion he found that a four-foot instrument in one part of the public gardens registered nine degrees above the temperature registered elsewhere and upon investigation he discovered that the waste water from the hot baths was carried off in a culvert a few feet away from where this thermometer had been placed. Dr. Symons is not very sanguine of the possibility of making accurate records of the density of fogs and considers that the fog gauge made of alternate white and black stripes of varying width, though suitable for the very opaque small-grained London fog, is quite useless in the estimation of the coarse-grained fog of the country. He proposes a scale based upon the limit of visibility and for this purpose notes the distance of various objects from the point of observation. For example, if the outline of a hill known to be six miles away can be seen but not beyond he records F 1; if an object three miles distant can only be seen then F 2 is recorded; and if an object one and a half miles distant is only visible then F 3, and so on. He thinks the geological and physiographical conditions have to do with the formation of fog. The very careful meteorological observations made by Dr. Symons, which include the amount of sunshine, the direction and the pressure of the wind, and the amount of evaporation going on, ought to be appreciated to the full in a town the popularity of which is dependent upon physical conditions.

Bath Eastern Dispensary.

The annual report of the Bath Eastern Dispensary, an institution which was established in 1832, states that 2794 visits were made to patients during 1904 and that the expenditure of the dispensary was £655, causing a deficit on the year's working of £52.

Plymouth Workhouse Infirmary.

At the meeting of the Plymouth board of guardians held on Jan. 26th a long discussion took place concerning the proposed scheme for providing a new infirmary at an estimated cost of £56,000. Eventually it was decided that only women's general wards should be erected to accommodate 104 patients at a cost of £9450.

Jan. 30th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

The Majority of the Students' Representative Council of the University of Edinburgh.

THE Students' Representative Council of the University of Edinburgh has attained its majority and, as was suitable at such an important date, it has been marked by special proceedings. On Friday night the students held a torchlight procession through the city which passed off successfully and was witnessed by many thousands of spectators. On Saturday night a dinner was held in the University union under the chairmanship of the senior president of the council, Mr. H. V. Rabagliati. The company numbered about 130 and included various distinguished persons and not a few of those who had taken an active part in the establishment of the council over 20 years ago. The Solicitor-General for Scotland, Mr. Dundas, K.C., who has just been raised to the Scottish bench, proposed the toast of the evening and dealt with the history of the formation and the work of the Students' Representative Council. The chairman responded to the toast and urged upon students to take more interest in the council as being the centre of University life. The Lord Advocate proposed the toast of "Alma Mater" and Principal Sir William Turner replied.

Researches into the Etiology of Carcinoma.

An interesting paper by Dr. W. Ford Robertson and Mr. H. Wade on plasmodiophora in cancer appeared in THE LANCET last week. During the week Dr. Robertson invited a number of his friends to a private demonstration of sections and cultures which was largely taken advantage of and much appreciated. On Thursday evening the work was submitted to the Edinburgh Pathological Club where it was fully discussed. This work is such a definitely new departure on previous methods that more will no doubt be heard of it.

Jan. 30th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Dispensary Medical Officers and the Local Government Board.

THE important case of Keelan *v.* the Local Government Board (which was reported in THE LANCET of Dec. 17th, 1904, p. 1757, and in which the legal right of the Board to amalgamate Collon No. 1 and Dramcondra dispensary districts (Co. Louth) with Collon No. 2 and Dunleer districts was contested at the instance of Mr. M. Keelan and Mr. M. Caraher) was reopened on Jan. 30th in the Court of Appeal before the Lord Chancellor, Lord Justice Fitzgibbon, Lord Justice Walker, and Lord Justice Holmes. It will be remembered that the Court of King's Bench refused to set aside the order of the Local Government Board by which one dispensary district was entirely done away with. The importance of the appeal is due to the fact that it is really a conflict between the Irish Medical Association and the Local Government Board and the Board's view of its gravity is shown by its having briefed for each trial both the Attorney-General and the Solicitor-General in addition to its own counsel. The case is now being heard.

Appointment of Coroner for Belfast.

At a special meeting of the city corporation of Belfast held on Jan. 30th Dr. James Graham was appointed city coroner of Belfast at a salary of £650 per annum. It would appear that the Act of Parliament lays down that the coroner shall be paid by fees but to get over this it has been arranged that all fees received on account of the office over and above the sum of £650 shall be refunded to the corporation.

Purdysburn Infectious Diseases Hospital.

A number of years ago, contrary to the views of the medical profession in Belfast, the city corporation decided to build an infectious diseases hospital at Purdysburn, about three miles from the city and close to the new asylum. Apparently the corporation never considered the question of the drainage of either institution and quite recently it was discovered by the appearance of pipes on the roads that it is now proposed to convey the sewage of both the infectious diseases hospital and of the asylum directly into the city sewerage system and to bring it right through the main drains of the city. Naturally this has aroused great opposition and a deputation of ratepayers who waited on the public health committee were assured that there was no danger as the sewage would be disinfected. This statement, however, has only stimulated the ratepayers to still more determination and at a meeting held on Jan. 30th it was decided to send a deputation to the city council in reference to the matter. Those who object to this new departure on the part of the city fathers say: 1. Why are patients with infectious disease taken away to a hospital right out of the city and then their dejecta brought back again into the city? 2. The scheme will cost £8000, for the pipes have to be brought at least a mile to join the main city sewers and a pumping station will have to be established and there will be an annual up-keep. 3. In exceptional periods when parts of the city are flooded it was proved that objectionable matter was as a result deposited, a state of matters much more serious in the case of sewage coming from an infectious diseases hospital. 4. That it is unwise to depend on a few workmen for the disinfection of sewage coming through the city from an infectious diseases hospital. The question at issue is whether there is any plan of disinfection of the sewage which will be sufficient; the public health committee says that there is but it has not yet stated what method it proposes to adopt. Apart from everything else it shows wonderful want of forethought that the committee should not have arranged definitely as regards the disposal of the sewage from a large infectious diseases hospital before undertaking the erection of such an institution.

The New City Hall, Belfast.

Great uneasiness prevails in Belfast as to the total absence of business capacity now shown by the corporation owing to the extraordinary revelations made public last week at an inquiry held by the engineering inspector (Mr. P. C. Cowan) of the Local Government Board regarding a further loan for the new city hall. The original contract was £150,000; £300,000 have been already expended and now, after the lapse of seven years, more money is wanted for furnishing. As Mr. Cowan (who commented very severely on the matter) could get nothing but loose figures and estimates on the part of the committee of the corporation as to what the ultimate cost of the building would be, he adjourned the inquiry to March when he will require a clear, definite, and final statement of the total cost of this wasteful piece of corporate expenditure. It is no wonder that so little progress is being made in public health reform in Belfast when it came out at this inquiry that £8000 were to be squandered in the furnishing of the main council room in this "House of Lords" (as Mr. Cowan, the inspector, called it in contempt), with chairs reckoned to cost £50 each for the city fathers.

Jan. 31st.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Alleged Communication of Syphilis to a Horse.

AT a recent meeting of the Berlin Medical Society Dr. Piorkowsky showed a horse to which he had given an intravenous injection of blood serum obtained from patients suffering from syphilis in different stages. The injection was made into the jugular vein and several weeks afterwards a papular eruption appeared on the neck and the breast of the horse together with a swelling of the glands. The interval between the injection and the appearance of the eruption corresponded to that elapsing in the human subject between primary infection and the development of secondary symptoms. Dr. Piorkowsky was of opinion that the eruption was syphilis. In the ensuing discussion Professor Lassar adopted this view on the ground of the microscopical examination of the eruption, which, he said, presented features very similar to those observed in syphilis. Dr. Aronson, however, stated that eruptions having the characteristics in question were often observed in horses after the injection either of albuminous substances or of extracts of bacteria and that they had nothing to do with syphilis. Dr. Benda, Dr. Hoffmann, and Professor Brieger opposed Dr. Piorkowsky's views on anatomical grounds. The general opinion of the meeting was that the communication of syphilis to the horse was not proved by Dr. Piorkowsky's experiments and that no inferences as to the production of an antitoxin for the treatment of syphilis could be founded on them.

Jan. 28th.

CANADA.

(FROM OUR OWN CORRESPONDENT.)

A New Bacteriological and Pathological Laboratory.

Dr. George Charlton of Montreal has been appointed by the Government of the North-West Territories of Canada to establish a bacteriological and pathological laboratory at the capital of the Territories, Regina. At the start Dr. Charlton will devote himself particularly to the study of the diseases of cattle and horses, as the ranchers have suffered considerable loss from a disease known as swamp fever which is rapidly fatal to horses. The College of Physicians and Surgeons of the North-West Territories will also benefit by the establishment of the new laboratory, as Dr. Charlton will conduct investigations there in regard to epidemics of diphtheria and typhoid fever. Dr. Charlton has recently returned from Europe where he has been working in various laboratories since his connexion with the pathological department of McGill University some few years ago.

Montreal Hospital damaged by Fire.

Montreal's fine hospital, the Royal Victoria, was damaged by fire to the extent of $30,000 early on the morning of Jan. 14th. No patients were removed from the wards but everything was in readiness for such an emergency. The governors have received a cable from Lord Strathcona, Canadian High Commissioner in England, that he will bear all the cost of restoring the burned portion of the building. The report of this institution for November, 1904, shows that 245 patients were admitted during that month, that 229 were discharged, and that 11 died. In the outdoor departments there were 764 medical cases, 407 surgical, 467 ophthalmological, 76 gynæcological, and 374 laryngological, making a total of 2088.

Notre Dame Hospital, Montreal.

At the annual meeting of the board of governors of Notre Dame Hospital, Montreal, which was held in December last, it was shown by the annual report that during the last official hospital year the number of patients admitted into the institution reached a total of 2226, of whom 1313 were men and 913 were women. Of the indoor patients 1919 were discharged recovered or improved; 166 left the hospital unimproved or recognised incurables, while 156 died in the hospital. The average stay of each patient in the hospital was 18 days. In the outdoor services 20,458 consultations were given. In the pharmacy 26,000 prescriptions were dispensed. The ambulance made 1437 calls. Each patient costs the hospital $1.09 per day. The total expenditure amounted to $43,824.63 and the total receipts to $41,742.05, thus leaving a deficit of over $2000. The new contagious diseases hospital in connexion with Notre Dame is making good progress and will be ready for occupation by April of this year. It will have accommodation for 200 patients and will be modern in every respect.

Annual Report of the Montreal League for the Prevention of Tuberculosis.

The Montreal League for the Prevention of Tuberculosis has been at work now for upwards of 18 months, the reports

of the first cases of consumption being received on June 1st, 1903. Reporting of cases of consumption to the league is, of course, optional, the object being to educate and to instruct those afflicted as to the regular ordering of their daily lives. Where the cases are advanced, where destitute and neglected, they are sent to the home for incurables; in incipient cases an effort is made to send the patients to the country but lack of financial support has somewhat crippled the league in its work. An interesting and important investigation has been made by the league in connexion with the deaths from meningitis in children reported to the city health department. In 1903 there were 248 deaths among children under five years of age from meningitis in Montreal. In almost every case investigation established the fact that in the homes of the patients there was living someone with consumption and the records at the health office showed that fully 90 per cent. of these deaths were tuberculous. During the 18 months of the existence of the league 300 cases have been reported to it, the youngest being five and the oldest 70 years of age. Of the 300 cases information has been received of the death of 136. Of this number 85 were between the ages of 16 and 36 years. The work of the inspector of the league up to the issue of the report was as follows: visits made to different cases, 1667; 9000 cuspidors distributed; a large quantity of pamphlets distributed; 500 houses disinfected; and 3000 wall cards placed in 326 public and private institutions for the instruction of the inmates.

Jan. 21st.

Obituary.

AMBROSE BIRMINGHAM, M.D. R.U.I., F.R.C.S. IREL.,

PROFESSOR OF ANATOMY IN THE CATHOLIC UNIVERSITY MEDICAL SCHOOL, DUBLIN.

Professor Ambrose Birmingham died in Dublin on Jan. 23rd at the untimely age of 41 years, after an illness which he bore with cheerfulness and, indeed, with heroism. He was born in the West of Ireland and belonged to a family in which no less than five brothers became members of the medical profession. His early education was received at St. Vincent's College, Castleknock, and his professional studies were pursued at the Catholic University Medical School in Dublin. He took the diploma of L.R.C.P. Irel. in 1885 and having also become an undergraduate of the Royal University of Ireland he graduated there as M.B. in 1887 with the additional distinction of obtaining first honours and an exhibition. In 1892 he proceeded to the degree of M.D. in his university and in 1897 he was admitted F.R.C.S. Irel. At an early period in his career he was appointed demonstrator of anatomy at the medical school of the Catholic University, and then assistant to Dr. (now Sir) Christopher Nixon who has the merit of having been the first to recognise his special ability. In 1888, when Sir Christopher Nixon on the death of the late Dr. Lyons accepted the chair of practice of medicine, Dr. Birmingham was appointed professor of anatomy and registrar to the medical school and made a visit to the University of Edinburgh. On his return to Dublin he became a Fellow of the Royal University of Ireland and proceeded to devote all his ability and energy to his special subject and to the welfare of his medical school. In a short time he developed an extraordinary aptitude for organisation and business and with his clever lectures the number of students quickly increased from 100 to the 300 who marched three deep in his funeral procession on Jan. 26th. Yet with all this work on his hands he found time to devote to investigation and to the purely scientific side of his profession. A long list of his original papers and communications is to be found in the Medical Directory under his name. Perhaps the most important of these was his contribution to the "Textbook of Anatomy" by his friend Professor D. J. Cunningham, to which he supplied the article on the Abdomen. Moreover, his paper on Cranio-cerebral Topography with Special Reference to the Mastoid Region of the Skull is of permanent practical value. For many years Professor Birmingham had suffered from colour blindness. About two years ago the continuous strain of his many undertakings proved too much and though he was partially restored by rest and a tour on the Continent he was never again the same man. His health unhappily broke down just as he was doubtless about to obtain the distinctions to which his brilliant and arduous work entitled him. Professor Birmingham was always modest and unaffected; he was universally esteemed by his colleagues, while he was justly admired and almost venerated by the crowds of pupils whom he taught so successfully and to whose advancement he really sacrificed his valuable life.

At the Catholic University School of Medicine, the Dean of the Medical Faculty (Sir Christopher Nixon), in addressing the professors and students, said: "I have never had to undertake so painful a duty as that which falls to my lot to-day in referring to the death, in the prime of life, of my former pupil, colleague, and devoted friend, Professor Birmingham. In the full vigour of a brilliant and well-trained mind, after passing the period of storm and stress through which all scientific workers must pass, as through a fiery ordeal, when all that brings fame and fortune is almost within one's grasp, 'death breaks the vital chain,' and robs both him and us of the fruits for which the seed had been so industriously sown. The whole thing is unutterably sad, too sad, indeed, for empty expressions of regret. Just 18 years ago Professor Birmingham succeeded me as professor of anatomy, and from that time up to the present he held a dual position in the school. He was responsible for the working of the anatomical department, and as registrar upon him devolved the organisation of the school as a whole, the several details of its financial arrangements, and in many respects the work for which I, as dean, am nominally responsible. In every phase of his work he was brilliantly successful and amidst all his labours he found time, with those elements of genius with which he was richly endowed, to make for himself a name distinguished amongst the ablest men of his own special science as a man of original powers of observation and research. If I might in a brief way analyse Birmingham's splendid abilities I would do so under three heads—as a teacher, as an original observer, and in reference to those qualities which made his personality so attractive to all who knew him. As a teacher he was the nearest approach to the ideal that I have had experience of. With the most thorough knowledge and grasp of his subject he possessed the rare gift of making it transparently clear, and by a bright and vivid description invested it with such interest as to excite the rapt and sustained attention of his class."

GEOFFREY HETT, M.D. EDIN., M.R.C.S. ENG.

THE death of Dr. Geoffrey Hett of 41, Westbourne-park-road, which occurred on Jan. 25th, in his sixty-first year, came as an unexpected blow to his friends. Born in Lincolnshire, he was educated at Merchant Taylors' School, then at King's College and the University of Edinburgh. After serving as house surgeon successively to the Lincoln dispensary and hospital he settled in London and spent most of his life as a Bayswater practitioner. In his early days he did good service as honorary secretary of the Royal Medical Benevolent College. He was also a contributor on medical subjects to the *Saturday Review*, under the editorship of his friend Mr. Walter Pollock, and had a special practice among literary men of that set. For the greater part of his life he was one of the officers of the Westbourne Provident Dispensary, the subscribers to which experienced his unfailing kindness and care not less than his better-class patients. Dr. Hett was a remarkably active man who, having turned 60 without a grey hair, still kept up his rowing and swimming. In youth he had been an energetic football player; in later days he would spend a holiday in walking to Brighton and to the last he made one of the small band of winter bathers in the Serpentine. His sudden death from heart failure was, therefore, a most painful shock to his family, with whose sorrow many will sympathise. One who has known him intimately for the greater part of his life writes that he cannot remember his ever saying a harsh or unkind word and few who came in contact with him could fail to be impressed by a singularly genial, unselfish, and serene nature. The first part of the burial office was said at St. Mary Magdalene's Church, Paddington, by the vicar, the Rev. W. H. Bleaden, a large congregation being present. The committal portion of the service was taken by the Rev. James Dixon, vicar of Willesden, an old friend and a former member of the dispensary committee. Dr. Hett

leaves a widow, one daughter, and three sons, the eldest of whom is a member of the medical profession.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Guido Bodländer of Brunswick, who was formerly assistant to Professor Binz, the Bonn professor of pharmacology.—Dr. I. M. Lvoff, *privat-docent* of midwifery and gynæcology in the University of Kazan.

Medical News.

UNIVERSITY OF OXFORD.—Scholarships in Natural Science are offered for competition on March 14th at Keble College and on May 2nd at Merton College and New College.—At a meeting of the Hebdomadal Council held on Jan. 23rd it was resolved that the hearty thanks of the University be accorded to Mr. Edward Whitley, B.A., Trinity College, for his generous and timely gift of £1000 towards the permanent endowment of the chair of pathology.—The Vice-Chancellor has published a letter received from Sir William Selby Church, Bart., K.C.B., D.M., D.Sc. Oxon., P.R.C.P. Lond., informing him of a meeting of medical graduates held in London on Dec. 20th, 1904, at which it was determined—

That, with a view to show the strong feeling that the medical graduates have on the necessity for promoting the study and teaching of pathology, a fund be started for the purpose of assisting in this object, and the primary object of this be the establishment and endowment of a professorship in pathology.

RURAL MIDWIVES' ASSOCIATION.—A very well attended meeting under the auspices of the Rural Midwives' Association was held at 50, Albemarle-street, London, W. (by kind permission of Mrs. Murray), on Jan. 25th. Lord Edmund Talbot presided and among those present were Sir Michael Foster, Dr. T. Savage, Dr. A. Bostock Hill (Warwick county council), Dr. R. Boxall, and Dr. J. Middleton Martin (medical officer of health of Gloucester). Mrs. Heywood Johnstone explained that the meeting had been called to discuss the best means of carrying out the Midwives Act in rural places and the especial difficulties in sparsely inhabited districts where even amongst the educated classes much ignorance still remained as to the necessity for the Act and the rules laid down by the Central Midwives Board. The object of this legislation might be summed up in the words, "the stamping out of puerperal fever," and it also aimed at the better nursing of the mother and child. The discussion to follow would embrace the following points: 1. The authorities appointed to carry out the Act. 2. Inspectors. 3. Inspection. Besides inspecting the appliances of the nurses and their dwellings, where possible the nurses should be inspected at their work in the cottages. 4. Disinfection. 5. The best type of midwife for rural districts. 6. Combination with nursing associations. 7. Midwives acting independently. 8. Financial aspects. 9. Further difficulties, among which were the impossibility of a trained midwife living on her earnings and the difficulty of getting uneducated women of the servant class to assimilate theory and to be conscientious in their work. Dr. Boxall said that the Central Midwives Board had expressed the opinion that a supervising authority should make arrangements for the inspection of midwives and this would be best carried out by a local authority. On this point Dr. Savage, representing the Warwick county council, said that they had put the matter into the hands of the sanitary committee which had recommended that two additional lady health visitors should be appointed for the purpose. The necessity for inspection was emphasised by Dr. M. Handfield-Jones who pronounced it the crux of the whole question if deterioration in the work of the midwives was to be prevented. Dr. Boxall pointed out the supreme importance of adequate disinfection. In the lying-in hospital with which he was connected, owing to the precautionary measures adopted, out of 8837 cases treated since 1887, not one had died who had been under their care from the outset. Sir Michael Foster, gave it as his opinion that the best type of midwife was the woman who had practical knowledge of the class to which she was to give assistance. She must be trustworthy and a person who would be accepted by the poor. The following propositions were put before the meeting:—

1. That a committee appointed by the county council would be the best authority to carry out the Act.
2. That inspection would be best carried out by, or under the supervision of, a county medical officer of health or a fully trained nurse midwife under medical supervision and not connected with local nursing associations.
3. That the best form of rural midwife is a woman with an intimate and practical knowledge of the life of the working class.

A vote of thanks to Mrs. Murray for lending her house for the meeting and to Lord Edmund Talbot for presiding having been passed unanimously the proceedings terminated.

LITERARY INTELLIGENCE.—The copyright of that useful and popular handbook "Half Hours with the Microscope" by Dr. Edwin Lankester, formerly published by Messrs. W. H. Allen and Co., has been acquired by Messrs. C. Arthur Pearson, Limited, who have also purchased the companion volume by Thomas Davies, on the "Preparation and Mounting of Microscopic Objects." The latter has been out of print for some time but a new and cheaper edition will be published very shortly.

LIVERPOOL MEDICAL INSTITUTION.—At the annual meeting held on Jan. 12th the following list of office-bearers and members of council was adopted. President: Dr. James Barr. Vice-Presidents: Dr. J. R. Logan, Dr. J. Wiglesworth, Dr. J. H. Abram, and Dr. George C. Walker. Treasurer: Mr. T. H. Bickerton. General secretary: Mr. F. Charles Larkin. Secretary of ordinary meetings: Mr. R. W. Murray. Secretary of pathological meetings: Dr. W. B. Warrington. Librarian: Mr. W. Fingland. Editor of the journal: Dr. F. H. Barendt. Council: Dr. A. G. Gullan, Dr. John Hay, Dr. David Morgan, Mr. K. W. Monsarrat, Mr. Rushton Parker, Dr. E. Stevenson, Mr. R. C. Dun, Dr. R. Thacker King, Dr. John Masson, Dr. W. McClelland, Dr. S. J. Palmer, and Mr. James Taylor. Auditors: Dr. Logan and Dr. J. Tawse Nisbet. General committee: Dr. Barr, Mr. Larkin, Mr. Bickerton, Dr. Logan, Mr. Murray, Dr. Palmer, and Mr. Rushton Parker. Library committee: Dr. Abram, Dr. Hay, Mr. Dun, Dr. Barendt, and Mr. Monsarrat.

DONATIONS AND BEQUESTS.—The committee of the Infants Hospital has received from the trustee of the Jessie Alice Palmer Charitable Fund the sum of £500 to endow a cot in memory of the late Jessie Alice Palmer.—Mr. Alfred Stephens, formerly a police officer in Hampshire, who died, aged 84 years, a fortnight ago at Newport, Isle of Wight, has left £2000 to the Royal County Hospital, Ryde, and £1500 to the National Consumption Hospital, Ventnor.—Mr. James Hamilton, who died on Jan. 1st at Paisley, has bequeathed to the Paisley Alexandra Infirmary £300; to the Scottish National Institution for Imbecile Children, Larbert, £200; and to the Paisley Eye Infirmary, the Poor Associations Society for Treatment of Incurable Diseases, and the Paisley Convalescent Home, £100 each.—By the will of Mrs. Elizabeth Broughton Ripley £500 each have been bequeathed to the Leeds Dispensary and Leeds Infirmary and Leeds Hospital for Women and Children.—Mr. Edward Nixon has by will bequeathed to the Royal Hospital for Incurables and the Sussex County Hospital at Brighton £500 each.—By the will of Mr. John Lightfoot Newall, of Ongar, Essex, estate of the gross value of £58,083 4*s.* 6*d.* has been left, of which the net personalty has been sworn at £19,333 17*s.* 10*d.* Subject to certain conditions and trusts, he left the residue of his son's share of his estate as to one-fifth each to the Royal Northern Hospital at Liverpool, the Royal Southern Hospital at Liverpool, the Royal Infirmary at Liverpool, the Bluecoat Hospital at Liverpool, and the School for the Blind at Liverpool, absolutely.—Mr. Charles Lea of Northampton has by will bequeathed £1000 to the Northern General Hospital, Liverpool, for the endowment of a bed.

BOOKS, ETC., RECEIVED.

ADLARD AND SON, Bartholomew-close, E.C.

The British Journal of Children's Diseases. Edited by George Carpenter, M.D. Vol. I. Price, cloth, 15*s.* net.

BAILLIÈRE, TINDALL, AND COX, 8, Henrietta-street, Covent Garden, W.C.

A Dictionary of New Medical Terms. Including upwards of 38,000 words and many useful tables, being a Supplement to "An Illustrated Dictionary of Medicine, Biology, and Allied Sciences." By George M. Gould, A.M., M.D., Editor of "American Medicine." Based upon Recent Scientific Literature. Price 21s. net.

Cancer and its Treatment. Being the Bradshaw Lecture, delivered before the Royal College of Surgeons of England on Dec. 1st, 1904, by A. W. Mayo Robson, D.Sc., F.R.C.S. Eng., Senior Vice-President of the College. Published by Request of the Council of the Royal College of Surgeons of England. Price 3s. 6d. net.

CHURCHILL, J. AND A., 7, Great Marlborough-street, W.

A German-English Dictionary of Terms Used in Medicine and the Allied Sciences. By the late Hugo Lang, B.A. Edited and completed by Bertram Abrahams, M.B., B.Sc., F.R.C.P., Assistant-Physician, Westminster Hospital, Sub-Dean and Lecturer in Physiology, Westminster Hospital Medical School. Price 15s. net.

St. Thomas's Hospital Reports. [New series. Edited by [Dr. H. P. Hawkins and Mr. W. H. Battle. Vol. XXXII. Price 8s. 6d. net.

J. B. LIPPINCOTT COMPANY, Philadelphia and London.

The Diseases of Society (The Vice and Crime Problem). By G. Frank Lydston, M.D., Professor of Genito-Urinary Surgery, State University of Illinois; Professor of Criminal Anthropology, Chicago-Kent College of Law. Price 15s. net.

MACMILLAN COMPANY, New York. (MACMILLAN AND CO., LIMITED, London.)

A Laboratory Guide in Elementary Bacteriology. By William Dodge Frost, Ph.D., Assistant Professor of Bacteriology, University of Wisconsin. Third revised edition. Price 7s. net.

MACLEHOSE AND SONS, JAMES, Publishers to the University, Glasgow.

Museums: Their History and their Use. With a Bibliography and List of Museums in the United Kingdom. By David Murray, LL.D., F.S.A. Three volumes. Price 32s. net.

SKEFFINGTON AND SON, 34, Southampton-street, Strand, W.C.

Religion and Health: their Mutual Relationship and Influence. By Norman Porritt, M.R.C.S., L.R.C.P., F.N.S.A., Consulting Surgeon, Huddersfield Infirmary. Price 3s. 6d.

STUBER, A. (C. KABITZSCH), Würzburg.

Die Histologischen Untersuchungsmethoden des Nervensystems. Von Dr. F. G. Bayon, Assistent an der Psychiatrischen Klinik zu Würzburg. Price M.3.60.

THE SCOTTISH MEDICAL AND SURGICAL JOURNAL, LIMITED, Edinburgh.

The Scottish Medical and Surgical Journal. Edited by Norman Walker, M.D., F.R.C.P., and Harold J. Stiles, M.B., F.R.C.S. Volume XV. (July to December). Price not stated.

TIP. EDIT. A. TOCCO & SALVIETTI, Via Nilo, 34, p. p. nobile, Napoli.

Istituto di Anatomia Patalogica della R. Università di Napoli, Diretto dal Prof. O. von Schrön. L'Influenza dei Piccoli Traumi sulla Localizzazione della Tubercolosi. Ricerche Sperimentali del Dr. Edoardo Salvia, Docente di Chirurgia, Prof. Incaricarto di Pediatria Chirurgica all'Università. (Pubblicato nel "Policlinico," Sezione Chirurgica, 1904—Anno XI.—fasc. 7 ed 8.) Price not stated.

TIPOLITOGRAFIA "LA INDUSTRIA," Linares Rivas, 11 y 13, Gijón, Spain. LIBRERIA DE D. MANUEL MANSO, Corrida, 20, Gijón.

Higiene Popular. Contribucion al Estudio de la Higiene de los Trabajadores y Enfermedades de los Jornaleros. Por Ambrosio Rodríguez y Rodríguez, Doctor en Medicina y Cirurgía. Price 8 Pesetas.

VIGOT FRÈRES, 23, Place de l'École-de-Médecine, Paris.

L'Anesthésie Locale pour l'Extraction des Dents. Par le Docteur Sauvez, Dentiste des Hôpitaux, Professeur à l'Ecole Dentaire de Paris. Préface de M. le Professeur Reclus. Price Fr. 4.

Traitement des Hémorragies Puerperales. Par le Dr. G. Keim, Ancien Interne des Hôpitaux de Paris et des Maternités de l'Hôtel-Dieu, Saint-Antoine et Laribosière, Ancien Préparateur des Cours d'Accouchements à la Faculté de Médecine. Price Fr. 3.50.

Les Méthodes de Rééducation en Thérapeutique. (Rééducation Psychique, Motrice, Sensorielle et Organique.) Par le Docteur Contet. Price Fr. 3.50.

WILSON, EFFINGHAM, Threadneedle-street, E.C.

A Magisterial Handbook: being a Concise Outline of the Everyday Functions of Magistrates with Tables of Offences and Matters Cognisable by them. By W. R. Poynter, Solicitor and Notary, Clerk to the Justices of Salford. Price 2s. net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

ANDERSON, LOUISA GARRETT, M.D., B.S. Lond., has been appointed Assistant Out-patient Surgeon to the New Hospital for Women, London.

BIRMINGHAM, C. L., M.D. R.U.I., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Westport District of the county of Mayo.

BORROWMAN, PHILIP, M.D. Edin., has been appointed a Medical Referee under the Workmen's Compensation Acts, 1897 and 1900, and to act for the Central District of the Sheriffdom of Perth.

BROWN, A. CARNARVON, M.R.C.S. Eng., L.R.C.P. Lond., has been appointed Casualty Officer and House Surgeon to the North-Eastern Hospital for Children, Hackney-road.

CRAIG, GEORGE, M.B. Edin., has been appointed Public Vaccinator for the District of Ohinemuri.

CUNNING, JOSEPH, M.B., B.S. Melb., F.R.C.S. Eng., has been appointed Assistant Surgeon to the Royal Free Hospital, London.

FENNELL, CHARLES H., M.A., M.D. Oxon., M.R.C.P. Lond., has been appointed Senior Assistant Medical Officer to the East Sussex County Asylum, Hellingly.

FERGUSON, WILLIAM, M.D., has been appointed a Medical Referee under the Workmen's Compensation Acts, 1897 and 1900, and to act for the District of Banff, in the Sheriffdom of Aberdeen, Kincardine, and Banff.

FROST, A. F., M.B., Ch.B. Melb., has been appointed Official Visitor to the Reception House at Townsville, Melbourne, Australia.

FRASER, JOHN H. P., B.A., M.B., B.C. Cantab., M.R.C.S., L.R.C.P. Lond., has been appointed Assistant Physician to the Royal South Hants and Southampton Hospital.

GRIFFITHS, T. R., L.R.C.P. Edin., L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Kidwelly District of the county of Carmarthen.

HAMILTON, C. W., M.D. Dub., has been appointed Honorary Laryngologist to the Consumptive Sanatorium, Belair, South Australia.

HAMILTON, T. K., M.D. Dub., F.R.C.S. Irel., has been appointed Honorary Laryngologist to the Consumptive Sanatorium, Belair, South Australia.

HOPKINS, G. H., F.R.C.S. Eng., has been appointed Honorary Visiting Surgeon, Brisbane Hospital, Queensland, Australia.

JACKMAN, JAMES JOSEPH HAYES, F.R.C.S.I., has been appointed a Medical Referee under the Workmen's Compensation Acts, 1897 and 1900, and to act for the City and County of Waterford.

LENNANE, G. Q., F.R.C.S., L.R.C.P., has been appointed Clinical Assistant to the Chelsea Hospital for Women.

MACLENNAN, ALEX., M.B., C.M. Glasg., has been appointed Dispensary Surgeon, Western Infirmary, Glasgow.

MOORE, THOMAS CHARLES, M.B., Ch.B. Dub., has been appointed Public Vaccinator for the District of Napier, New Zealand.

ORR, A. W., M.D. Dub., L.K.Q.C.P., has been appointed Honorary Assistant Surgeon to the Eye, Ear, Nose, and Throat Department, Brisbane Hospital, Queensland, Australia.

PARSONS, J. HERBERT, B.S., D.Sc. Lond., F.R.C.S. Eng., has been appointed Assistant Surgeon to the Royal London (Moorfields) Ophthalmic Hospital.

REISSMANN, CHARLES HENRY, M.D. Cantab., M.R.C.P. Lond., has been appointed Honorary Assistant Physician to the Consumptive Department, Adelaide Hospital, South Australia.

RUSSELL, HERBERT HENRY ERNEST, L.R.C.S., L.R.C.P. Edin., L.F.P.S. Glasg., has been appointed Honorary Assistant Bacteriologist, Adelaide Hospital, South Australia.

RYAN, J. F., L.R.C.P. Edin., L.R.C.S. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Loughrea District of the County of Galway.

SHONE, WILLIAM VERNON, M.R.C.S. Eng., L.R.C.P. Lond., has been appointed Public Vaccinator for the District of Christchurch, New Zealand.

STURROCK, PETER STURROCK, M.B., B.C. Cantab., has been appointed a Medical Referee under the Workmen's Compensation Acts, 1897 and 1900, and to act for the Dunfermline and Kinross District in the Sheriffdom of Fife and Kinross.

THURSFIELD, HUGH, M.D., M.R.C.P. Lond., has been appointed Assistant Physician to the Hospital for Sick Children, Great Ormond-street.

WALKER, EDWARD, M.D. Edin., M.R.C.S., has been appointed Honorary Physician to the Huddersfield Infirmary.

WHITE, GEORGE VINCENT, M.B., B.S. Melb., has been appointed Acting Health Officer at Thursday Island, Queensland, Australia, Surgeon of the Prison at that place, Medical Superintendent of the Quarantine Station at Friday Island, and Medical Officer for lepers detained in the lazaret at Friday Island, *pro tem.*

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BARNSLEY, YORKSHIRE, BECKETT HOSPITAL.—Resident House Surgeon. Salary £100, with board, lodging, and washing.

BRADFORD POOR LAW UNION HOSPITAL AND WORKHOUSE.—Resident Assistant Medical Officer, unmarried. Salary £125, with rations, apartments, and washing.

BRISTOL ROYAL INFIRMARY.—Resident Obstetric Officer. Salary £75 per annum, with board, lodging, and washing.

BUXTON, DERBYSHIRE, DEVONSHIRE HOSPITAL.—Assistant House Surgeon. Salary £70 per annum, with apartments, board, and laundry.

CHELSEA HOSPITAL FOR WOMEN, Fulham-road, S.W.—Clinical Assistant.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria-park, E.—Physician to Out-patients.

COUNTY OF LONDON, LONDON COUNTY COUNCIL.—Medical Officer to employees in District No. 4.

EDINBURGH, CRAIG-LEITH POORHOUSE AND HOSPITAL.—Resident Medical Officer. Salary at rate of £100 per annum, with board and apartments.

EGYPTIAN GOVERNMENT (MINISTRY OF PUBLIC INSTRUCTION).—Professor of Pathology and Bacteriology at the School of Medicine, Cairo. Salary £800 per annum.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.—Physician to Out-patients.

GROVE HALL ASYLUM, Bow, London, E.—Assistant Medical Officer. Salary at rate of £150 per annum, with board, apartments, attendance, and washing.

GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—Assistant House Surgeon. Salary £50, with board, residence and laundry.

HARTSHILL, STOKE-UPON-TRENT, NORTH STAFFORDSHIRE INFIRMARY AND EYE HOSPITAL.—Assistant House Surgeon for six months. Honorarium of £25, with board, apartments, and washing.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Assistant Resident Medical Officer. Salary £100 per annum, with board and residence.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Physician, unmarried, for six months. Salary £20, with board and residence.

KENT AND CANTERBURY HOSPITAL.—House Surgeon, unmarried. Salary £90 a year, with board and lodging.

KING'S COLLEGE (UNIVERSITY OF LONDON).—Professor of Anatomy, Professor of Zoology, and Assistant Physician or Assistant Surgeon for Diseases of the Throat.

MEDICAL DEPARTMENT OF THE NAVY, Victoria-street, S.W.—Three Dental Surgeons. Salary £1 per diem and (when necessary) travelling expenses.

NAPSBURY ASYLUM, near St. Albans, Herts.—First Assistant Medical Officer, salary £300 per annum; Second Assistant Medical Officer, salary £220 per annum; and Third Assistant Medical Officer, salary £160 per annum, with board and lodging in each case.

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Surgeon. Salary £100, with board, residence, and washing.

ROYAL LONDON OPHTHALMIC HOSPITAL, City-road, E.C.—Curator and Librarian. Salary £120 a year.

ST. MARY'S HOSPITAL, Paddington, W.—Surgeon. Also Casualty Physician. Salary £75 annum.

ST. PETER'S HOSPITAL FOR STONE, &c., Henrietta-street, Covent-garden, W.C.—Junior House Surgeon for six months. Salary at rate of £50 a year, with board, lodging, and washing.

SALFORD UNION INFIRMARY, Hope, near Eccles.—Assistant Resident Medical Officer. Salary £130 per annum, with apartments and attendance.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Physician, unmarried. Salary £50 per annum, with board and lodging.

SOCIETY OF APOTHECARIES OF LONDON.—Gillson Scholarship in Pathology. Value £90.

TEIGNMOUTH HOSPITAL, S. Devon.—House Surgeon. Salary £70 a year, with board, lodging, and washing.

WELLS, SOMERSET AND BATH LUNATIC ASYLUM.—Medical Superintendent. Salary £600 per annum, with house and allowances.

WESTMINSTER GENERAL DISPENSARY.—Honorary Surgeon.

THE Secretary of State for the Home Department, London, S.W., gives notice that an appointment as Medical Referee under the Workmen's Compensation Acts, 1897 and 1900, for Reading, Newbury, Hungerford, Farnham, and Aldershot, and Chertsey County Courts in County Court Circuit No. 45 is vacant, and also for Croydon and Epsom County Courts in County Court Circuit No. 45 is vacant.

THE Chief Inspector of Factories gives notice of vacancies as Certifying Surgeon under the Factory and Workshop Act at Chertsey in the County of Surrey, at Knottingley in the County of York, at Pangbourne and Whitchurch in the Counties of Berks and Oxford, and at Littleport in the County of Cambridge.

Births, Marriages, and Deaths.

BIRTHS.

LAY.—On Jan. 29th, at Peasenhall, Suffolk, the wife of Charles E. Lay, L.R.C.P., L.R.C.S., L.M., of a daughter.

WHEATON.—On Jan. 30th, at 10, Rastell-avenue, Streatham-hill, S.W., the wife of S. Walton Wheaton, M.D. Lond., M.R.C.P., D.P.H., of twin daughters.

MARRIAGES.

BEATTON—CALLAS.—On the 25th Jan., 1905, at Greyfriars Church, Reading, by the Rev. S. H. Soole, Vicar, assisted by the Rev. Bathurst Soole, Gilbert T. Beatton, Esq., M.D., The Cliffe, Bradford, Yorks., to Ada Elizabeth (Dolly), youngest daughter of Alfred Callas, Esq., of Loxden, Bath-road, Reading. At home, The Cliffe, Bradford, Feb. 20th and 21st, 1905.

SPRIGGE—JONES.—On Jan. 24th, at the Church of St. James the Less, Pangbourne, by the Rev. Canon Trotter, assisted by the Rev. Canon Miles, Samuel Squire Sprigge, M.D., of Farnham Royal, to Ethel Coursolles, eldest daughter of the late Major Charles Jones, retired Royal Artillery, and of Mrs. Charles Jones of Jesmond Hill, Pangbourne.

WHITE—BOWYER.—On Jan. 31st, at All Souls, Langham-place, W., by the Rev. Hayman Cummings, Ernest White, M.B. Lond., M.R.C.P., of 40, Margaret-street, Cavendish-square, W., and Ferndale, Sevenoaks, to Harriett Bowyer of Gobowen, Salop, late Nurse Matron, City of London Asylum, Dartford.

DEATHS.

BOTHAMLEY.—On Jan. 23rd, at 14, Balham-hill, S.W., aged 51, William Parkinson Bothamley, M.R.C.S., L.S.A.

LING.—On Feb. 1st, Maurice Edward Ling, M.D., of Harley House and 115, Harley-street.

YOUNG.—On the 30th January, at Bognor, Louie, wife of John Young, M.D., Stamford-hill. Funeral at Putney Vale Cemetery 1.30 on Friday. No flowers, please.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

SWEDENBORG'S ACCOUNT OF THE VERMIFORM APPENDIX.

A CORRESPONDENT writes to us as follows: "As diseases of the appendix are occupying a good deal of attention in the medical and scientific world it might be of interest to some of your readers to hear what Swedenborg wrote about this in his 'Animal Kingdom,' published in 1744. Swedenborg says that the appendix opens its pores and expands its cavity synchronously with the cæcum and pours into the cæcum and colon a liquid adapted for lubricating the wavy folds of the colon and particularly for macerating the fæces. In support of these views he quotes various anatomical authorities in a very long footnote, of which the following is part:—

> 'For if the intestines do not pour forth fluid at all, but only absorb it, then in this case, without a fresh spring, they would soon dry up; and the food, which in these intestines is a heavy, tenacious, and fetid mass, would collect and harden, to the entire destruction of life. To avoid these consequences, is apparently the purpose of the vermiform appendix, which continually pours a humor, adapted for performing this last office into the beginning of the large intestines. The structure of the appendix, and many experimental observations made upon it, bear out this view. "Its internal coat," says Winslow, "is plentifully furnished with follicles, and it is likewise reticular, the meshes being the glandular lacunæ, which continually discharge a fluid into its cavity." And Wepfer says: "In the appendix I found a white, turbid mucus: when this was wiped off, the whole of the internal surface appeared to be covered with little foramina, from which, on squeezing the appendix, a white, turbid liquid issued; and it was plain that the whole appendix was of a tubular composition." Morgagni also holds the same opinion, because, when the cæcum and ileum were distended with flatus, no air was observed in the appendix; nor (according to an observation o Zambeccari), when the appendix was cut off, were any fæces found to pass into the cavity of the abdomen; and further, because the appendix is inserted in the end of the cæcum, or the beginning of the colon, and in two cases, a very remarkable ridge was observed in this place, which rendered it impossible for any thing, either flatus or food, to pass into the appendix. (Advers. Anat. iii.) And what would be the use of so small a cavity, even supposing it were filled with food, when the intestine itself is so capacious? The appendix also is furnished with numerous glands, which, according to Heister, are comparatively erect, and not flat as in the intestines, and which consequently are emissary or excretory. Similar little appendices or cæca, also called vasa variosa, are found in all worms and insects, being inserted into both the colon and the duodenum: plainly for a similar purpose. From the meeting of the ligaments on the appendix, it may be inferred, that its excretion is more abundant during the full action of the colon. And for this reason, animals which live on hard foods, as fowls, birds in general, and fishes, commonly have several appendices; deficiency in this respect is always attended with a corresponding deficiency in the natural functions. Moreover, Wepfer affirms, that similar springs of humor are found in the colon.'

In another long footnote Swedenborg discusses the nature and origin of this fluid which issues from the appendix and argues that it is 'the superfluous lymph of the peritoneum.' He remarks also that in the body the 'recrementitious humors' always perform some use before they are thrown out."

HOLT-OCKLEY NURSING SYSTEM.

To the Editors of THE LANCET.

SIRS,—Will any of your readers with experience inform me as to successes or failures of the above system, and in failures the reasons of want of success? Any letters addressed to me as below will be gratefully acknowledged and considered absolutely confidential.

I am, Sirs, yours faithfully,
H. T. WHITLING, M.B. Durh.

Husbands Bosworth, Rugby, Feb. 1st, 1905.

PARIS SEWAGE.

IN an editorial article the *Engineer* of Jan. 27th states that the Prefect of the Seine has just brought out a scheme for the creation of a double system of septic tanks and contact beds, this being the first official acknowledgment that the sewage farms have not done all that was expected of them. Various difficulties have, however, been encountered in the working of the Paris sewage farms and have been commented on in the pages of that journal from the period when the last sewer was closed and the announcement was made that no more sewage would ever be diverted into the Seine down to the abandonment of the Achères farms because the agriculturists who had leased them found that the land was so swamped with sewage that cultivation was unremunerative. The Pierrelaye and Méry farms have also given trouble and it is said that the main cause of the failure of all the farms is that at least twice

as much sewage had been diverted on to them as they were intended to receive. Heavy damages are also being claimed by leaseholders on the sewage farms and by others who have suffered from the indiscriminate discharge of sewage. The Paris municipal council is therefore desirous of trying other means of sewage disposal and last year delegated a number of engineers to visit some of the bacterial installations in England and to report upon this system. The first bacterial installation in France has been laid down at Lille and a very favourable report upon it has been made.

A HOME FOR THE WEIR MITCHELL TREATMENT.

To the Editors of THE LANCET.

SIRS,—Will any of your readers be so good as to inform me of the address of an institute where a patient of limited means could be admitted to undergo the "Weir Mitchell" treatment? I do not think that she could afford more than about 10*s.* a week.

I am, Sirs, yours faithfully,

Ravenhurst, Talbot-road, Wembley, Feb. 1st, 1905. H. W. ARMIT.

A MODIFIED FORM OF EARTH CLOSET.

WE have received from Mr. R. J. H. Parkinson of Mablethorpe, Lincolnshire, an illustrated description of a form of closet which he has devised—namely, a modification of the "type in which a deodoriser such as earth or other substance may be employed." Its essential feature is that fæces and urine, although simultaneously received in the same vessel or pan, are immediately separated from one another, the solid matter being retained on the surface of a layer of straw packed in the pan, while the fluid portion drains away through a hole in the bottom of the pan into a sewer, cesspool, or other container. The pan is intended to stand on the ground underneath the seat of the closet and below the level of the floor; for the purpose of being emptied it is easily removed through a small door in the back wall below the floor level.

THE CASE OF DR. A. D. GRIFFITHS.

To the Editors of THE LANCET.

SIRS,—Will you kindly announce the following additions to the amount promised towards the Arthur Griffiths testimonial fund?

	£	*s.*	*d.*		£	*s.*	*d.*
Amount already acknowledged	22	15	6	Dr. M. H. Greener	1	1	0
Sir R. Douglas Powell ...	2	2	0	Mr. W. Edmund Thomas	2	2	0
Mr. Howell Rees (further subscription)	0	16	0	Dr. R. W. Broad	1	1	0
				Mr. Percy W. Griffiths ...	1	1	0

I am, Sirs, yours faithfully,

A. P. FIDDIAN, Treasurer.

23, The Walk, Cardiff, Jan. 31st, 1905.

THE "GLASEPTIC" NEBULISER.

THE important advantage of this neat little nebuliser is that it is constructed entirely of glass so that no oxidation or corrosion can happen to it. In addition, it is easily cleansed and, if need be, rendered aseptic. It is a very effective "nebuliser" and it works efficiently even with a few drops of liquid, and it answers equally well whether the agent is viscid or mobile. Thus it is adapted to the "atomising" of solutions of any density, concentrated saline solutions, oily fluids, or ethereal or spirituous menstrua. The glass portion—i.e., that portion apart from the bellows—measures only three and a half inches high by one and three-quarter inches in diameter, so that it is easily accommodated in the pocket. The apparatus may be corked and the active agent in it preserved. The "glaseptic" nebuliser can be obtained from Messrs. Parke, Davis, and Co., of 111, Queen Victoria-street, London, E.C.

ASEPTIC FURNITURE.

To the Editors of THE LANCET.

SIRS,—We notice on page 97 of THE LANCET of Jan. 14th an illustration of an aseptic table made by Messrs. Allen and Hanburys. Not only is this table an almost exact copy of our university table, introduced five years ago, but their illustration is evidently inspired by our own, which has been freely distributed for the last four years. We believe we were the first makers to use phosphor bronze in the construction of aseptic furniture, making some specimens for University College Hospital early in 1902, which we afterwards submitted to the staff of the New St. Mary's Hospital, Manchester. Our samples being accepted we fitted up the principal operation theatre of that institution entirely with phosphor bronze furniture.

We are, Sirs, yours faithfully,

MAYER AND MELTZER.

Great Portland-street, London, W., Jan. 27th, 1905.

POCKET ALBUMIN TEST CASE.

THIS is a convenient and handy application of the salicyl-sulphonic acid test for albumin in the urine. The apparatus consists of a small glass pipette provided with a constriction situated about an inch from the point. A rubber cap is attached to the top of the pipette by means of which a small volume of urine may be introduced into it. Before this is done a tablet of salicyl-sulphonic acid is dropped into the upper end of the pipette and will rest upon the constricted portion of the tube. The tablet serves to divide the pipette, and hence the volume of urine, into two portions. As the salicyl-sulphonic acid dissolves a stream of the solution descends into the lower volume of urine when, if albumin is present, there is an immediate precipitate. The upper portion remains clear since no reagent reaches it and hence a comparison is easily made. In the event of a precipitate forming the fluid is boiled, when if albumin is present the fluid remains turbid. The entire apparatus in a polished metal case is only three and a half inches in length, so that it may be conveniently carried in the waistcoat pocket in the same way as a clinical thermometer. Messrs. Allen and Hanburys of 37, Lombard-street, London, E.C., are the makers.

WHOLESOME LITERATURE.

ON Feb. 14th a new paper for boys, and especially for those of our elementary schools, will be published by the Religious Tract Society, with a view of counteracting the effects of the literary garbage still so largely circulated amongst lads. It will be conducted by Mr. G. A. Hutchison who projected and has edited from the first, now over 26 years ago, the well-known *Boy's Own Paper*, will cost only 1*d.* per number, and will bear the name of *Every Boy's Monthly*.

Candidate.—The books mentioned by our correspondent will amply suffice but we advise him to pay most attention to Osler's Medicine in the list of medical books. As to the history of medicine, a valuable compendium is "Medical History from the Earliest Times," by Dr. E. T. Withington, published by the Scientific Press.

Mr. James S. Elder.—The composition of the preparation was thus given by Dr. Robert Hutchison in THE LANCET of Nov. 28th, 1903, p. 1493: atropine, cocaine, hyponitrous acid, and various balsamic extracts, administered by means of an "aeriser."

I.M.S.—Our correspondent will find in THE LANCET of Sept. 3rd, 1904, a list of books recommended for the higher qualifications which will, doubtless, serve his purpose.

M.D.—We do not think that there is any objection to the course proposed provided that the card is only sent to patients on the books.

J. M.—Our correspondent will find full details in THE LANCET of Sept. 5th, 1903, p. 650.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (6th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.).

TUESDAY (7th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Royal Ear (3 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.).

WEDNESDAY (8th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

THURSDAY (9th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square, (9.30 A.M.), Guy's (1.30 P.M.).

FRIDAY (10th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9. 30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.).

SATURDAY (11th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

MONDAY (6th).—MEDICAL SOCIETY OF LONDON (11, Chandos-street, Cavendish-square, W.).—9 P.M. Dr. G. H. Savage: On Functional Mental Disorders. (Lettsomian Lecture.)

TUESDAY (7th).—PATHOLOGICAL SOCIETY OF LONDON (St. Mary's Hospital Medical School, Paddington.).—5 P.M. Laboratory Meeting.

WEDNESDAY (8th).—SOUTH-WEST LONDON MEDICAL SOCIETY (Bolingbroke Hospital, Wandsworth Common).—8.45 P.M. Paper:—Mr. G. H. Makins: Some Remarks on the Indications for Gastro-jejunostomy and its Results.

DERMATOLOGICAL SOCIETY OF LONDON (11, Chandos-street, Cavendish-square, W.).—5.15 P.M. Demonstration of Cases of Interest.

THURSDAY (9th).—BRITISH GYNÆCOLOGICAL SOCIETY (20, Hanover-square, W.).—3 P.M. Specimens will be shown by Dr. Macnaughton-Jones. The President (Dr. W. Alexander): Inaugural Address.

HARVEIAN SOCIETY OF LONDON (Stafford Rooms, Titchborne-street, Edgware-road, W.).—8.30 P.M. Dr. G. A. Sutherland: Clinical Observations on Lobar Pneumonia in Children.—Mr. E. L. Evans: Anterior Metatarsalgia with Notes on Seven Cases.

CHILDHOOD SOCIETY AND THE BRITISH CHILD-STUDY ASSOCIATION (Parkes Museum, Margaret-street, W.).—8 P.M. Lecture:—Dr. G. E. Shuttleworth: Some Physiological Problems in Education. (Arranged by the British Child-Study Association.)

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM (11, Chandos-street, Cavendish-square, W.).—8.30 P.M. Papers:—Mr. B. Stevenson: Notes on a Case of Large Orbital Exostosis removed by Operation (with specimen).—Mr. C. Wray: The Treatment of Tobacco Amblyopia.—Mr. E. T. Collins and Mr. R. Batten: Neuro Fibroma of the Eyeball and its Appendages.—Mr. A. Ogilvie: Exostosis of Orbit.

FRIDAY (10th).—CLINICAL SOCIETY OF LONDON (20, Hanover-square, W.).—8.30 P.M. Papers:—Dr. W. Ewart: A Case of "Soft Valve" Mitral Stenosis in which no Murmur was heard.—Mr. E. P. Paton: A Case of Accessory Thyroid laterally placed in the Floor of the Mouth.—Mr. H. B. Robinson: Extraperitoneal Uretero-lithotomy in a Child aged Three Years.—Mr. D. Drew: Calculous Anuria in a Child.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (6th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. E. G. Little: Clinique. (Skin.) 5.15 P.M. Dr. E. Cautley: Congenital Hypertrophic Stenosis of the Pylorus.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. Saunders: Myxœdema and Cretinism, (with cases).

TUESDAY (7th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. S. Taylor: Clinique. (Medical.) 5.15 P.M. Mr. F. Eve: The Diagnosis of Tumours and other Enlargements of the Long Bones.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. M. Moullin: Posterior Displacement and Prolapse.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—4.30 P.M. Lecture:—Dr. G. P. Chappel: Pleural Effusions.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury, W.C.).—3.30 P.M. Dr. J. Taylor: Epilepsy.

WEDNESDAY (8th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. H. L. Barnard: Clinique. (Surgical.) 5.15 P.M. Dr. G. H. Savage: The Relationship between Suicide and Insanity.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. Beddard: Practical Medicine.

THURSDAY (9th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. Hutchinson: Clinique. (Surgical.) 5.15 P.M. Mr. A. H. Tubby: Orthopædic Surgery.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. Keetley.

CHARING CROSS HOSPITAL.—4 P.M. Dr. Mott: Demonstration of Medical Cases. (Post-Graduate Course.)

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST (7, Fitzroy-square, W.).—5 P.M. Lecture: Mr. H. Barwell: Laryngeal Paralyses and their Value for Diagnosis. (Post-Graduate Course.)

SAMARITAN FREE HOSPITAL FOR WOMEN (Marylebone-road, N.W.).—3 P.M. Mr. Doran: Malformations of the Genital Tract considered Clinically.

THE HOSPITAL FOR SICK CHILDREN (Gt. Ormond-street, W.C.).—4 P.M. Lecture:—Dr. Batten: Muscular Atrophy in Children.

FRIDAY (10th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. W. J. Horne: Clinique. (Throat.)

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. C. Williams: X-Rays (illustrated by lantern slides).

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury, W.C.).—3.30 P.M. Dr. J. Taylor: Syphilis of the Nervous System.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—4.30 P.M. Mr. R. P. Brooks: Myopia.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. II. of 1904, which was completed with the issue of Dec. 31st, and the Title-page to the Volume, were given in THE LANCET of Jan. 7th.

VOLUMES AND CASES.

VOLUMES for the second half of the year 1904 are now ready. Bound in cloth, gilt lettered, price 18*s.* carriage extra.

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(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Feb. 2nd, 1905.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain-fall.	Solar Radia in Vacuo.	Maximum Temp. Shade.	Min. Temp	Wet Bulb.	Dry Bulb.	Remarks at 8.30 A.M.
Jan. 27	30·89	S.W.	...	57	44	29	Fzn.	30	Foggy
,, 28	30·88	W.	...	58	50	30	39	40	Overcast
,, 29	31·00	W.	...	48	46	36	33	36	Fine
,, 30	30·59	W.	...	62	49	36	40	41	Cloudy
,, 31	30·31	N.W.	...	65	49	41	41	44	Cloudy
Feb. 1	30·02	W.	...	74	52	42	44	45	Cloudy
,, 2	29·92	N.W.	...	72	48	42	40	43	Fine

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